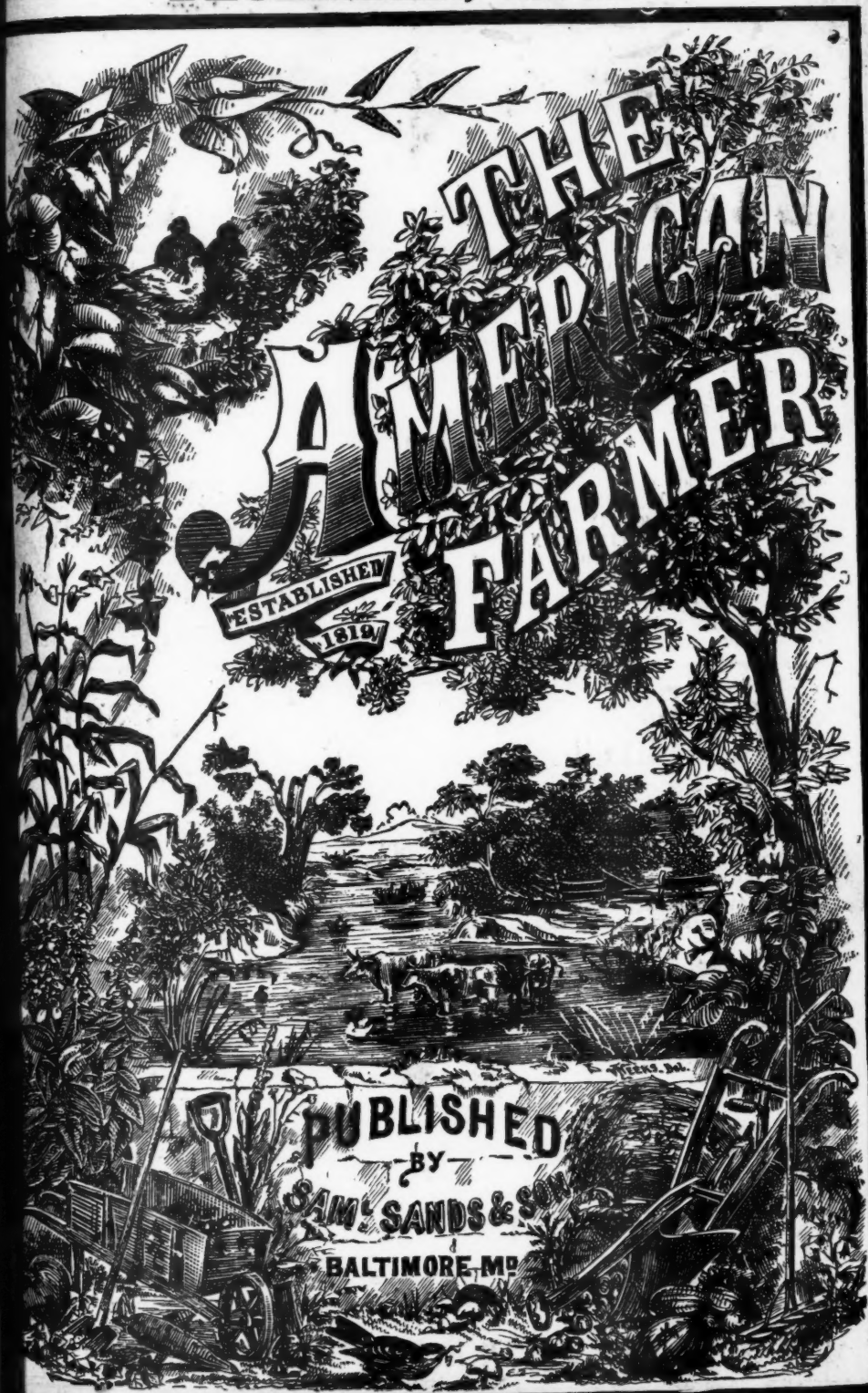
DECEMBER, 1876.



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No heavy Bones taken out for Bone Black, or other purposes.

The First Manufacturer in America that sold GROUND BONES by WEIGHT.

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BONE MEAL

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CHEMICAL LABORATORY OF P. B. WILSON, No. 32 SECOND STREET, BALTIMORE, July 30, 1878.

Joshua Horner, Jr.—Dear Sir: The following is the result of analysis of a sample of your Bone Dust drawn by myself from a lot of seven tons lying in your warehouse:

Moisture, (deter. at 212° F.)	3.74 per cent.
Organic Matter	40.12 per cent.
Containing—Nitrogen, 4.08; Ammonia 4.95.	
Inorganic Matter	56.14 per cent.
Containing Phosphoric Acid	24.52 per cent.
Containing Bone Phosphate of Lime	53.52 per cent.
Insoluble Matter	2 51 per cent.

This is the BEST SAMPLE OF BONE DUST I CAN FIND IN THE MARKET, and call your especial attention to the LARGE PERCENTAGES OF VALUABLE MATERIAL for the improvement of the soil, and to the SMALL PERCENTAGES of moisture and insoluble matter

Respectfully, etc., P. B. WILSON, *Analytical and Consulting Chemist.*

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CATTLE, HORSES, SHEEP, SWINE and POULTRY. In this Department we buy only from breeders of established reputation of the several kinds, and cannot undertake to procure ordinary farm stock, such as draft horses, milch cows, &c. In this vicinity great attention is paid to some particular breeds of stock, and specimens can be had here which are nowhere to be surpassed.

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EDITORS AND PUBLISHERS AMERICAN FARMER,

No. 9 North St., Baltimore, Md.

Edwards – Hawkins

THE

AMERICAN FARMER.

"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . . *Virg.*

PUBLISHED BY SAML. SANDS & SON, BALTIMORE, MD.

VOL. V.—NO. 12.] DECEMBER, 1876. [NEW SERIES.

Correspondence.

Woodlawn Agricultural Society of Fairfax Co., Va.

Editors American Farmer:

The October meeting of this association was held on the 28th, at William Hunter's, on the opposite bank of the Potomac from Fort Washington. Over one hundred members and invited guests were present, yet the bountiful supply on the tables was not exhausted.

The President, C. Gillingham, being absent at the yearly meeting of Friends in Baltimore, R. F. Roberts was chosen chairman.

A portion of the minutes of the September meeting was taken exception to as exposing the ignorance of members of the club. After considerable discussion on the subject it was found that no one was prepared, from actual observation, to say whether the roots of wheat all sprang from the kernel of wheat buried deep in the soil, or branched out from the stalk near the surface of the ground. A committee of three were appointed to make careful observations at different stages of the growth of wheat, and report at some future meeting of the club.

The portion of the minutes alluded to was the reply to the question, what is the proper depth to put in seed wheat?

Jacob Troth replied that careful observers had discovered that at whatever depth the kernel of wheat was put so as to germinate, a stalk of wheat would shoot up, and the roots of the wheat plant form near the surface of the ground. This fact seemed to be new to nearly every one. It was confirmed by some who had never thought of it as being an invariable rule. The advantage of drilling in wheat is therefore apparent by depositing the seed in a gutter formed by the drill; the action of the frost and rains of winter covers the roots of the wheat plant, thereby preventing it from being thrown out, as is often the case when wheat is sown broadcast and dragged in.

The question was asked at the October meeting, when is the best time to sow timothy seed, and how much seed to the acre? Some advocated sowing eight quarts, others two quarts to the acre, but the general opinion was that four quarts of timothy seed should be sown in the fall with the wheat and four quarts of clover seed in the spring. One farmer said the quantity should be regulated according to the quality of the land. If it was poor, sow more seed than on rich land. If the land was not covered with grass the weeds would cover it. A member inquired how and when should clover seed be sown so as to insure a catch? Another member replied that last spring he wet his oats and mixed clover seed with them, dragging all in together at a depth of two to four inches. The result was a good stand of clover that defied the drouth. The same farmer said he had received great benefit from the use of a liberal sprinkling of plaster on his clover.

A member stated that a disease had appeared among his fat hogs that he could not account for. They were taken with purging, bleeding at the nose and mouth, others voided blood in their urine; two had died. He had given sulphur and charcoal, which stopped their purging.

Another member said he had a similar disease among his swine—vomiting and purging—but no bleeding. He had given salts with good effect. For a six-months' hog he gave three table-spoonsful at a time. None had died. A good arrangement for drenching any animal was to attach 12 or 15 inches of rubber hose to the neck of a bottle in which the medicine is put. It can then be administered without difficulty.

The critical report was read by D. P. Smith, Esq., which gave such an interesting statement of what an enterprising farmer had done on an old field pine-barren in a few years, that the committee were requested to prepare a copy for publication, which is annexed to this report. After making arrangements for the next meeting, the club adjourned to meet November 25th.

N. W. PIERSON, *Secretary.*

REPORT OF EXAMINING COMMITTEE ON WM. HUNTER'S FARM.

To the Woodlawn Farmers' Club:

Gentlemen—In entering on the duties devolving upon us to-day, your committee feel more than the usual responsibility. We acknowledge at the outset our inability to do full justice to the broad fields spread before us for inspection, and can only attempt a cursory glance at the most prominent features. Twenty years ago our

genial host, Mr. Wm. Hunter, purchased four hundred and ten acres of land here, on which was a small scarcely habitable house, a dilapitated stable and corn-crib, not a vestige of fence deserving the name, and every rood densely overgrown with pines, cedars, and various kinds of bushes. Gentlemen of the Farmers' Club, view the contrast now presented to your eyes! We are seated in an elegant mansion, superbly furnished and situated on this beautiful elevation, in full view of the noble Potomac river, whose broad and placid bosom is thickly dotted by swift and majestic steamers, and shadowed over by the white wings of commerce, bearing the products of these prolific shores to a thousand distant marts. The apology for a stable has expanded into spacious barns, with well-arranged stalls for his large stock of horses and cattle; and ample sheds for sheltering his wagons, reapers, mowers, plows, harrows and other appendages of an extensive and well-managed farm. He is a liberal patron of manufacturers of agricultural implements, but is determined that they shall not enrich themselves through his carelessness He purchases the best productions of their skill, uses them judiciously and shelters them carefully from injury by exposure to the weather.

On every side of his mansion slope away well-fenced fields, thickly coated with rich autumnal grasses, where quietly graze his numerous and evidently well-tended herds. In his old orchard of apples and peaches, we to-day find ten horses and colts. Some of the horses are superannuated servants now enjoying, through the humanity of their kind owner, the reward for years of faithful labor in his service. We would be doing gross injustice not only to our host but to our own feelings, should we fail to commend in a proper spirit this humane trait in his character.

When incapacitated by age or accident for the active duties of the field or road, instead of being turned upon some bleak heath to perish by hunger and exposure, or sold for a paltry trifle to some inhuman monster, disguised in the form of man, to be beaten, tortured and starved to death by slow degrees, they are given the free run of his nutritious pastures in summer, and kindly housed and fed during the inclemency of winter; or, when life, notwithstanding all his care, evidently becomes a burden to the faithful beast, it is kindly dispatched in the most humane manner possible. We say unto all, go and do likewise!

In addition to the ten horses just mentioned, we find in harness six work-horses and a span of mules, all manifesting by their thickly covered ribs, shining coats, and cheerful expressions, that they are the willing servants of a kind master, who most religiously observes the scriptural injunction: "Thou shalt not muzzle the ox that treadeth out the corn;" and who also seems to remember that "a merciful man is merciful to his beast."

In the same lot we find twelve milch cows and one full-blooded Alderney bull, all in splendid condition. Mingling with these, and apparently on the best of terms, we counted thirty-one large ewes and one ram that showed a liberal portion of Southdown blood, and nearly all of them fat enough for the shambles. In speaking of the orchards we would remark that, in our opinion, the soil is becoming sod-bound, and would recommend an application of the plow at an early date. On our left, as we approach the residence, is a field of over fifty acres, which has been in grass several years, and seems to be still improving. On our right is also sod ground, of more recent seeding, presenting a fine appearance. In another inclosure are seven head of dry cows most assiduously engaged in taking on a thick coating of flesh for the approaching winter. North of the building is a large young orchard of apples, pears and peaches, well cultivated mostly in market truck, and in a flourishing condition.

On the south we can count about a dozen large straw stacks, from which our host informs us he has threshed nearly one thousand bushels of wheat. His corn crop last year he estimated at eighteen hundred bushels, and he has yet about one hundred and fifty bushels on hand. The remainder has nearly all been fed on the farm, which partly accounts for the good condition of his stock. In a well-arranged pen, are eleven fat pigs, and running in an adjoining lot is a fine male hog.

Our host's poultry yard is well stocked with dung-hill fowls and turkeys—the latter very forcibly reminding us of the rapid approach of Thanksgiving and Christmas. We must not omit to mention that we find adjacent to his other buildings a blacksmith shop, provided with all the tools necessary for making and repairing many farm implements, and in connection therewith a large quantity of lumber of various kinds and sizes, nicely housed, and ready at any time for immediate use. A pump at his stable door affords an abundant supply of excellent water, both for his teams and assistants, whenever they return at noon or night from their duties in the field or on the road. West of the highway which divides his extensive farm in two unequal parts, we saw thirty acres of newly sown wheat, fifty acres of unhusked corn, and two or three acres of various roots, looking well, except one row, the failure of which our host can explain in person for the benefit of the members of this Club.

We also find on this part of his farm about one hundred acres, recently plowed, which was covered by a heavy growth of grass and weeds. This, we presume, is mostly designed for corn the coming year.

This model farm is inclosed and divided by a variety of fencing materials—cedar rails occupying the first place, followed by three or four miles of Osage orange hedge, a portion being of sufficient age to form an excellent and tasty fence, and the later set promising, in time, to be equally effective. But what particularly attracted our attention, were two long strings of fence constructed of cedar stumps so compactly arranged as to be a perfect terror to all evil-disposed marauders, whether of the swine, bovine, or equine genus. Indeed, we think a nomadic Tartar would sooner attempt to storm the celebrated Chinese wall than to scale this unique barrier, so artistically erected by our enterprising host.

Your committee, or at least one of the members, being somewhat noted for his habit of applying the critical scalpel, has endeavored in this extensive field to gather the proper materials out of which to construct a full-sized and most scorching

report. But, alas! "Othello's occupation's gone," and he is forced for once to acknowledge his inability to find employment in his usual vocation.

The skill and judgment of our host in conducting his farming operations have incased him in armor that proves impervious to our pen, for we can find no unguarded spot at which to direct our darts, and are obliged to confess that little or nothing is wanting to render this a model homestead, and one every way worthy of imitation by every tiller of the soil.

THE COMMITTEE.

The Harrisonville (Md.) Agricultural Union.

Editors American Farmer:

Our Union has grown from a membership of twenty in January, '74, to forty-two now; but of all this number we have but about ten or twelve active, useful men. All want the benefit of reduced rates on fertilizers, but *few* the benefit of social intercourse, the comparing of farm notes, or any new ideas of their brother farmers. Hence at our regular meetings on the 1st and 3d Saturdays of each month, we have but about the above number to answer roll-call. Our place of meeting is Harrisonville Hall, in the 2d election district, 10 miles from Baltimore, on the Liberty Turnpike. Our object is to improve the farming interest in our community, but more especially the farmer's mind, by a discussion of suitable questions and a general dissemination of useful knowledge—often readings from *The American Farmer* and other leading journals.

In the spring, we had a very interesting discussion upon the question: Does the oats crop pay the farmer? Most of our members took the affirmative of the question. Messrs. Thos. C. Worthington, Wm. E. Fite and R. P. Choate arguing at length, that the very little expense in sowing and reaping, the bountiful yields, the excellent feed of both grain and straw for horses and the making ready of corn-stalk ground for wheat, all taken into consideration, it was one of the best paying crops, and the farmer could ill afford to lose it. C. H. Shipley and E. S. Choate, upon the other hand, argued that not only was oats almost killing to land, but making it too light for wheat and grass, rendering them more liable to winter-killing, and always leaving more or less oats in the ground, to start ahead of wheat and choke it. Mr. Shipley, who is one of our most experienced and practical farmers, says, by plowing down his stalk ground in spring, letting it lie till latter part of August, then cross plowing, he can get a much better stand of grass, and more than enough *extra* wheat from an acre, than the oats would be worth. Many of our best men have abandoned the oat crop entirely.

During our fall meetings we had several discussions upon merits of various fertilizers. More than a majority of all our members favoring Slingluff's Dissolved Bone. In report of wheat crop, we averaged from 10½ to 33 bushels. R. P. Choate from 14 acres threshed 390 bushels. E. S. Choate from 8½ acres, 272 bushels. C. H. Shipley, 33 bushels per acre. The Choate Bros, Fultz. Shipleys, Fultz and Amber. From 4 quarts Clawson Winter White, sent from Agricultural Department, Washington, I threshed 10 bushels splendid wheat, weighing 62½ lbs. The above was all grown with Slingluff's Bone, and followed by an excellent stand of grass.

We have had a contest the past summer on corn. Our club offered a prize of ten dollars to the member who could grow the most corn upon one acre. Edward Lynch, Enoch G. Thompson and R. P. Choate, contended. The Union appointed committees to measure ground and corn. Lynch broke an old sod lying beside his barn-yard, manured it heavily, then sowed Turner's Ammoniated Phosphate in row. Corn drilled from 10 to 12 inches in rows 3 feet apart. The July drought affected him seriously; his yield, 14½ barrels. Thompson,—an old sod lying beside a stream; no manure. 1 bag Turner's Ammoniated in row. Corn planted about as Lynch—yield 19½ barrels. Choate broke up a Timothy sod; manured on top. Drilled 500 lbs. ground bone. Sowing in rows Turner's Ammoniated. Drilled corn from 12 to 20 inches in rows 33 inches apart—yield 22½ barrels. Showing conclusively that by giving better attention to a few acres we can produce much more with less cost. Certainly the times, labor and prices, call for a higher grade of farming.

Most respectfully yours,

E. S. CHOATE, *Secretary.*

Balto. Co., Md., Nov. 22d, 1876.

Farm-yard and Artificial Manures Compared—The Crops in Prussia.

Messrs. Editors of the American Farmer:

In reading the report made by Mr. J. L. H. Gregory in the August number of the *American Farmer*, I cannot help saying something against his opinion, that agriculture can be carried on successfully and lastingly without breeding cattle or sheep. In all of the best and greatest agricultural establishments, as well in England as on the continent, it is a settled fact that it is more rational and profitable to advance money in rich food for animals to gain rich manure, than to depend altogether on artificial fertilizers. However small the net profit is of keeping animals, yet they produce the cheapest and the most universal manure. What will do for a gardener is not fit for the farmer that raises wheat and all kinds of grain.

A good rich stable dung, gained from well-fed animals, contains all mineral and nitrogenous substances necessary for the life and growth of plants; it contains these substances in due proportion; by its decomposition within the soil it transforms the soil into the best mechanical, chemical and physical state, so that the growing plants find, during all their lifetime, a healthy, rich standing place; by decomposing slowly, all ammoniacal gases are swallowed up by the growing plants, and the mineral substances become free and soluble just when the roots are in want of them; finally, the effect of farm-yard dung does not depend so much on the season, whether very dry or wet, for the decomposition is slow and lasting and only advances more rapidly during moist, warm weather, just when plants shoot vigorously. All these requisites the best artificial

manure cannot fulfil. No chemist is can prepare an artificial manure so that it suits all kinds of soils, all kinds of weather, all kinds of plants; and so that it furnishes to plants all nourishment at the right time. During the growth of the plants a great deal of ammonia escapes before the plants are large enough to make use of it. Mineral substances, when not taken up by plants, combine with other congenial atoms and become insoluble and unfit for the plants.

But above all, artificial manures do not at all influence the *physical* state of the soil, and it is known that this fermenting power of stable dung is as important as the ingredients themselves. Unfavorable seasons, either dry or wet, will many times reduce the result of artificial manure to a mere trifle. I would rather advise your readers, wishing to bring their farms into a high state of culture, to keep a proper number of cattle or sheep, and feed them well and richly and gain a rich stable dung, rather than to spread upon the soil an artificial manure, to be washed away by rain showers or sink into the sub-soil or escape as volatile gases. Let the barn-yard manure be the basis of agriculture and you will improve your land and will fill your pocket by selling grain. It is the natural law, that animals and plants nourish one another. Artificial manures ought to be used as a supplement on certain kinds of soils or for a certain kind of plants, raised on the same place uninterruptedly.

The harvest in Prussia, when taking 100 for the average result, is considered to be: Wheat grain, 81.4; straw, 79.4; rye grain, 70.5; straw, 67.6; barley grain, 90.4; straw, 89.9; oats grain, 93.8; straw, 89.9; peas grain, 97.7; straw, 96.5; buckwheat grain, 89.5; rapeseed grain, 84.1; straw, 90.3; potatoes, 95.3; beets, 94.8; meadow grass, 86.6; clover, 80.9; lupines, 91.6; hops, 74.4; tobacco, 94 per cent., altogether a poor crop. Yours truly,

Schonlanke, Prussia, Oct, 1876. E. WENIG.

Winter Oats in Virginia.

Messrs. Editors American Farmer:

I finished seeding to-day a small lot 12 bushels of winter oats, covering about 8 acres. The land was ploughed with two horses, and oats harrowed in with heavy harrow; put in good order. Two years since it grew clover, and a light re-seeding with clover next spring, top-dressing with bone and Peruvian guano, will, I think, give me a good oat crop and to be followed by a clover crop and improved land. The past few years decided success of the winter oats and frequent failure of the spring-sown oats has convinced every one of the policy of seeding fall oats. The yield is often double; the success on good soil, properly treated and timely seeded, and the value of each bushel cleaned oats for seed, market or feed, being 20 per cent. greater than the spring oats, are some of the advantages taught us practically by growing the two kinds on the same land, seeding in September and October, and in February and March. The points derived from experience in this crop are as follows: Sandy, light and badly drained soils are not suited to winter oats; they winter-kill by heaving out in one soil, and the texture of the soil does not protect the roots of the growing plants in the other.

While the oats should be seeded a sufficient time before freezing weather to get good foothold and cover the ground, yet we frequently succeed in sowing as late as the middle of November. There is much risk, however, in late sowing, and if the ground freezes just as they are coming through, the crop will be lost.

On good strong land, the oats tiller so well that five pecks of seed to the acre, like wheat, has covered the whole surface and yielded a fine crop. The later the seed are sown, the more should be used, even to 2 bushels per acre, and the deeper they should be covered. In general, on corn land, after November 1st, I prefer to sow on *corn stubble*, and cover with one-horse turn plows, then harrow level with the two-horse drag. The same provision for surface drainage should be made for oats in water furrows as for wheat.

My impression is that grazing to a moderate extent by colts, calves and lambs (and one winter some sows and pigs were a month on the winter oats without rooting) is more beneficial than otherwise to the succeeding oat crop.

Harrowing the oats in early spring to put in clover and orchard grass-seed, *when the earth is dry*, appears to give the oats a rapid start forward; and when the first misty, rainy day comes after the clover and grass-seed come up and the lime-spreader runs over the land sprinkling plaster, bone flour and Peruvian guano, of each 100 lbs. per acre, we are pretty sure to be satisfied with the results on that land for two or three years to come. NANSEMOND.

Suffolk, Va., Nov. 12, 1876.

German and Hungarian Millet.

Editors American Farmer:

I tried the German and Hungarian millet side by side, both on old rich ground, and on light pine land which had been two years in corn and tobacco, with the following results: The seed was sown at the commencement of the July drouth, and for more than three weeks the ground was not wet, only once ½ inch. On pine land the Hungarian hardly made a show—a perfect failure—while the German made a fair crop standing from 2 to 2½ feet, and the best heads were as good as any samples I saw at the Centennial Exhibition. On the old land the Hungarian was just fair, while the German stood 5 feet on an average. One head counted out 9,660 seeds, weighing 6 drachms apothecary's weight, and I think I can find many heads to beat this, and I don't think the average would be less than 7,000 seeds to the head. Some of the heads were 8 inches long.

For forage it will produce two to three times as much as the Hungarian on good land, and on poor the proportion stands fair for 9 to 0 for Hungarian. The German will take from 7 to 10 days longer to mature for hay, but I think two crops can be made in one season. I mean to try it next year. W. M. EVANS.

Amherst Co., Va., Nov. 9, 1876.

Will the readers of the Farmer kindly remember that in exerting themselves to extend its circulation they not only do us a favor, but at the same time serve their fellow-farmers and the neighborhood in which they live?

Our French Letter.

Stock-Raising.

Messrs. Editors American Farmer:

The Department of the Nievre is celebrated for the rearing and fattening of cattle; and agriculture there, once so backward, is now the most flourishing in the realm. The farmers have become wealthy by abandoning expensive systems of culture and confining their attention to live stock. The enlightened agriculturists of France recognize two truths: that they cannot compete with America and other countries in the profitable raising of wheat, nor with Australia in the growth of wool. It is on the production of meat, then, that attention is fixed and for which the demand is unlimited and the competition nil. Wool is regarded but as an accessory. The question of improved breeds of cattle, and the precocious production of meat, are two subjects that occupy very seriously the attention of Continental agriculturists. Belgium seems to have taken a strange step to advance these ends; the provincial council of Hainaut has decided that henceforth no pure Durham blood shall be imported for ameliorating local races; the latter must be amended by a careful selection of the best local types. Thus, reliable purity of descent, and aptitude for the butcher, are secondary considerations. The discussion continues to be interesting between Professor Sanson and his opponents, on the question of precocity. According to the professor, it is the maturity of the bones that limits and stops the development of the flesh, etc., while the contrary view is, that it is the complete development of the soft parts, which arrests growth of the skeleton. Food acts in two manners; nitrogen tends to the production of flesh, phosphoric acid to that of the bones. M. Sanson lays down, that the acid pushes to maturity, by hardening the extremities of the bones, and thus checking the growth of tissue; not a few maintain, that the solidification of the bone is the natural consequence of the animal's fleshy structure having been completed, and requiring no more phosphoric acid to form new tissue, the acid concentrates itself in the tissue of the bones—the latter contain 30 per cent. of organic matter. The phosphoric acid accumulates in the extremities of the bones, as it collects in the seeds of plants, and the laws in both cases would appear to be similar, to grow at first, and when growth is over to ripen. Maturity is thus the consequence and crowning of growth.

Forage Plants.

Much attention continues to be devoted to the subject of forage. Wheaten straw is largely consumed, but then it must be of a golden yellow, possessing a mild odor, and a saccharine taste; the stems should be thin, flexible, and shining, and the ear garnished with its chaff. Straw that has been a long time threshed is only fit for litter.—The best hay in this country, and perhaps the observation holds good elsewhere, is that which is produced on light, moist, but not wet, mountain soils; next, such as is yielded by land more sandy than clayey; to be nutritive, hay ought to preserve its green color, to possess an odor agreeable and aromatic; the stems should be thin, supple, and difficult to break, possessing as much as possible their flowers and leaves, and in addition to a fragrant odor, to have a slightly sweet taste.

Respecting bran, it is essential that it be fresh, floury, and agreeable to taste; it undergoes serious alterations in the course of three months, becomes bitter, and heating, this fermentation is soon succeeded by putridity, and the bran quickly becomes a home for insects.

Lucerne.

Lucerne is a plant much calumniated of late on the continent; it is reproached with being short-lived and unremunerative. Much of the culpability rests at the door of those who do not bestow upon its culture much attention; it is liable to be attacked by dodder, but this weed is the offspring of slovenly farming—so grow your own seed, is the remedy. M. Beaucamp recommends that lucerne ought only to be cut twice in a season, the second aftermath to be grazed; this latter plan does not lay bare the crowns of the plant so much as the scythe does, and thus prevents the cold rains and snow from killing the root by fostering it. He reaps 2¼ tons per acre the first cutting, and half that quantity the second, and which sells for a total sum of fr. 350 per acre. The success that has followed the employment of preserved green maize in trenches for a spring feeding, has naturally concentrated attention on the propriety of conserving red clover, rye, and other precious forage plants, to be placed in trenches during the close of May and early days of June, and thus become armed against the effect of a dry summer. The plan has been tried on several farms with success. Where rye is sown as an intercalary crop for spring green feeding, the custom in the north of France is to chop it, and mix it with beet pulp; the cattle eat the mixture greedily.

Agricultural Education in France.

France has at last her "Agricultural Institute," where the most advanced form of agricultural instruction will be imparted to students already educated in various branches of human knowledge. The new Institute is on the eve of opening, and foreigners will experience no difficulty in obtaining permission to join the classes under stated conditions. It is not so much a new as an old institution revived, having been founded in 1848 at Versailles, and suppressed in 1852 by the Empire. Agricultural education is given in France in the farm schools, which is the primary stage, and where only the children of the peasants and artizans are expected to attend; then follows the "regional" establishments, of which there are two, perhaps three would be a more correct classification, for the Grignon school fulfills all the conditions of one, as well as being more practical. The Montpelier and Grand-Jouan colleges represent the regional type, that is a school where the agricultural processes in the different zones, or regions of France, would be specially studied. The new Institute will be very scientific in its aims, and will have an experimental farm of 120 acres in the vicinity of Paris at its disposal; it will not teach general sciences; it will take mechanics, chemistry, physics, and physiology, in their technical relations with modern agriculture. The German empire has perhaps a monopoly of this superior agricultural knowledge, and it is to her 10 agronomical Institutes, and 174 secondary farm schools, that she

owes much of her rapid progress in moral economy. Austria possesses two of these superior Institutes; Hungary has four, but not of so advanced a character, and Sweden possesses five. Agriculture is undergoing to-day what is common to every other science—a revolution; it is becoming more an industry where affairs must be conducted with promptitude, activity, and intensity; it must invent, transform, renew itself; adopt scientific methods, powerful and rapid processes. The strength of agriculture does not resemble that of the ancient Egyptians—in sitting still.

The Phylloxera.

A but too open question, is the best means to destroy the vine bug; the phylloxera are extending their ravages; there is no cure, but a multitude of proposed remedies. The point now is, to ascertain where the bug cannot be found; winged, it has been discovered lately, on the cobwebs that are so plentiful in vineyards, and even on the fruit itself—a hint for the exportation of grapes. Having failed to poison and to starve the insect, efforts are made to induce it to feed on red maize planted between the vines, and new legislative measures are threatened against the plague.

The Vintage

has been completed in excellent conditions—dry, warm weather; the wine will be of excellent quality, but the quantity, owing to spring frosts, will be sensibly reduced; some proprietors have thus lost four-fifths of their annual yield.

In Belgium, flax is often visited by a disease, which destroys the plant within 48 hours after being attacked; growth is suddenly checked, the flax etiolates and dies; and the crop has to be ploughed down; M. Ladureau attributes the cause to a deficiency of potash in the soil, and finds vegetable ashes an excellent preventive.

M. Laperiere cures the lung disease, or stops the contagion, by fumigating the cattle; burning 30 grains sulphur per cubic yard of air in the sheds. F. C.

Paris, October 19, 1876.

Oats, Grass and Merino Sheep.

Messrs. Editors of American Farmer:

We are often told that an oat crop exhausts the fertility of our land, yet for a number of years in succession we raised a crop of oats on one of our orchards near the barn where our merino sheep were stabled, and each year after the crop was harvested a flock of the merinos had the range of it until another crop was up; and yet the fertility of this field annually increased. After that we ploughed a distant field and seeded the thinnest part with oats; the balance was planted to corn. The season was wet and the oats all down. Next year we planted all of the field with corn; result, we could trace to a hill in every row where the oats were the years previous. Others noticed this and asked me the reason. After that we could not see any difference in the succeeding crops. We have often ploughed a pasture and seeded to oats, and in the fall with wheat and timothy, and in the spring cross-sowed with clover: thus always securing a good crop of wheat, and the field was left better than before.

We have often sown with the oats, timothy and clover, and pastured with our merinos in preference to letting the oats grow and ripen; result, the field was in better condition, and a good catch of grass secured, while to let the oats ripen we always had to reseed with grass. However, our merinos have now gotten our old fields (when we came here a barren waste,) so fertile that a crop of wheat, rye, barley or oats grown and ripened badly, smothering out our grass, and hence we usually have to sow with grass the second time. Merino sheep would do the same for the old fields in Maryland if your farmers would let them. For some reason a Maryland farmer prefers barren fields to merino sheep and rich land. J. S. Gon.

Brownsboro, Penna., Nov., 1876.

Products of the Earth.

Messrs. Editors American Farmer:

Pretty much of everything that is useful to us comes out of the ground. If we want bread we must plant or sow; if we want fruit or vegetables we must plant. Should we live where the climate is so good that everything comes spontaneously, we are the more lucky. The Indians prefer hunting to cultivation, and some have a fancy for fishing. But, after all, those that labor and cultivate the soil are the hardiest, the best satisfied and most independent. The hunting, fishing and the berrying way of making a subsistence is somewhat precarious. To be independent it requires hand work and brain work.—To have enough one must labor with his hands and with tools. He should fix up a good cabin or house-place to shelter from the storm, the sun and wind. The animals that are requisite to him for plowing and hauling must be protected from the inclemencies of the weather, and to abide the convenience of his master; for if he was turned out or not made comfortable he might go astray and be absent when wanted. So with the other domestic animals. The fewest number have everything at the start necessary to carry on any sort of business, so they must work for themselves or others to procure the means wherewith to conduct business. "Some are born with a silver spoon in their mouths, others with a wooden ladle;" yet it sometimes happens, by neglect or mischance, they change positions. As a remedy against misfortunes and accidents, lay up as well as make. If you *have*, you don't have to borrow or to beg. It matters not what your calling is, you must work and take care in order to be independent. Whatever you have a turn for you will most likely succeed in. If you have a good head and a good constitution, with industry, you may thrive as a farmer. If you are weakly, careless and lazy you are pretty apt to come out at the little end of the horn in any kind of business. To be a gentleman in the broadest sense of the word, a good head, a good heart and a cultivated mind, pretty much fill the bill. In fine, it takes all sorts of people to make a world—the good sort are respected, the bad sort are shunned, and the worst sort are selected for the penitentiary.

C.

From our Corresponding Editor.

Farming and the Labor Question.

Desirous of benefiting in every way we can the farmers of North and South Carolina, and believing in the free interchange of thought and modes of action in regard to our farming interests and the labor question there will be mutual advantage, the corresponding editor proposes to go to any point in those States where the farmers may desire it, and so inform him, and address them upon farming interests and upon a plan for securing improved and reliable labor.

We have given these matters mature thought, and being accustomed to public speaking, and well known through those States as editor of the *North Carolina Argus*, and *Shelby Banner*, we believe that by securing concentration of purpose and action, greatly improved and reliable labor can be secured and retained, and a new era of prosperity, thrift and successful culture inaugurated.

In England and Scotland, with most of the old settled countries, the land-owner is fixed and secure in a bountiful income, and as secure, with prudence on their part, of the respect and affection of his tenants, because they regard his leasing them land as a direct act of favor and friendship. He is treated as a patron and benefactor. His advent among them is honored with song, feast and rejoicing. He is their friend and they are his, and help by their voice to make up the nation's verdict for him as an honored Lord of the Realm.

Not so where adverse teaching, from the lowest and basest of their kind, prevail; where the laborer is taught to regard his employer as his chief enemy and would-be enslaver, and that their chief end and aim in existence should be to do them hurt! then, there can be no prosperity. A tenantry such as is first above named can be secured and retained by us, and as cheaply as our present ruinous system—and the way is plain.

Our dense forests and muck-laden swamps are our native guano beds. No lands surpass ours, in native recuperative resources, in original fertility. No climate more genial and health-inspiring. No country affords greater facilities for water powers; pasturage luxuriant for most of the year. Nearly all manner of fruits flourish and thrive. Then what lack we? "Come and let us reason together." Let us unite, concentrate, co-operate in the grand endeavor to make glad, pleasant, beautiful, luxuriant and thrifty the homes of our dear Southland.

A Fertilizer for Corn and Rice.

Farmers should know that one of the best fertilizers for corn or rice, in well-drained bottoms, is almost always to be found near them. After thorough breaking up of the ground, lay off the rows with a shovel-plow five or six inches deep, and, if intended for rice, three feet apart is a good width; if for corn, four and a half or five feet apart; then get dry straw, leaves, trash and sticks from the woods, fill the trenches well up and set fire to them, and as soon as they are burned, or nearly so, cover with a turning plow. This will make astonishing crops of corn or rice, and is of lasting virtue to the land. The corresponding editor knows from experience, and tests he has seen of the plan, that it will pay farmers well for the trial.

Good Manure for Orchards.

A wagon-load of well-rotted leaves or fine straw thrown about the roots of each tree once every two or even three years will, if the ground is cultivated about them, keep them very thrifty, and in excellent bearing order for a great while. We think there are few better fertilizers for apples, pears or grapes. No one in the Carolinas need complain of poor or thriftless orchards, while these materials are so abundant and convenient.

Dynamite.

How to rid our farms of stumps is a question of serious importance to the masses of the farmers in timbered regions. Any plan promising to do this, without too great expense and labor, would be met with rejoicing almost approximating to "bonfires and illuminations." The lever-power stump machines are too ponderous and expensive. Mule and ox power are not sufficient for the arduous "twistification;" while digging them out by hand is too slow and prosey for our fast poetic age. Yet all want them out. Stumps and labor-saving reapers and mowers do not harmonize. None like to cultivate stumps. Corn, cotton and rice might stretch off to the limit of vision in unbroken rows, but for them, and the two-horse reapers with attendant rakes might have free course through our wheat, rye, oats, or grassy meads! Dynamite is the promised relief. *The Farmer's Advocate* (Canada) says of it:

USE OF DYNAMITE ON THE FARM.

There is no greater obstacle to successful farm operations in newly settled portions of the country than the great difficulty of removing stumps from the ground. So great is the labor attending their removal, and so heavy the expense, that the stumps are usually allowed to remain till they become so decayed that they can be taken up with little trouble. The waste ground occupied by them during the time, and the loss of time in plowing and tilling round them, are too well known to farmers. The new explosive, dynamite, gives fair promise of aiding us in removing those stumps, so that the reclaiming of land from the forest may be attended with less labor and ultimate expense. An experiment was lately made in Scotland by invitation of the East Lothian Agricultural Society to demonstrate the power and utility of the new explosive in clearing land from large stones and stumps of trees. The experiment was quite successful. Not less than forty were blown up by the force of the explosion in an hour. The process was simple, and there was very little labor attending it. A spadeful of earth at the side of the stump was removed and a hole made in the stump with a crowbar. A cartridge of dynamite was pressed by means of a wooden ramrod into the hole; a detonating percussion cap with a fuse attached was squeezed into a small cartridge of dynamite and put into the hole in the trunk in contact

with the charge. The hole was then filled with loose earth, a portion of the fuse a foot long being left uncovered. A match was applied, and the operators retired to a distance. The work was soon completed; the explosion took place; the trunk was burst out of the ground, some of the fragments being thrown a distance of over 300 feet. The discharge was complete in every instance. Large boulders were blown into fragments as small as walnuts by simply placing the dynamite on the top of the stone, covering it with wet sand, and firing it with a fuse. The great advantage to those clearing their land from stumps must be apparent to those who having cut down the timber, and done their logging, could not for years to come say their farms were cleared while the stumps remained such obstacles to cultivation. In pine lands especially, the stumps remain undecayed for almost a lifetime. We have known a farmer pay fifty cents each for taking out pine stumps thirty years after the forest had been cut down.

DO ALL KNOW that a tablespoonful of pulverized alum administered in the food of horses having water founder—a very dangerous thing—will in three or four days completely cure them? It is a simple remedy, any one can try it, and it will be sure to prove efficacious.

Number of Times to Plough Cotton.

Our experience in cotton culture, says the *Southern Cultivator*, is, that *frequent* ploughings should be given up to *fruiting* time—the object being to hasten growth and make *weed early* in the season. But as soon as fruiting begins, the ploughings should be at longer intervals—just often enough to keep down grass and weeds. In one sense cotton frequently ploughed matures earlier—that is, it grows off better, makes weed earlier and takes on fruit before that which is neglected does anything scarcely; but in the *final* maturity, our observation is, that the cotton ploughed the smaller number of times will ripen and open earliest. Large, rank cotton ploughed *deep* late in the season—say in October—will open better also.

A CHEAP TOBACCO PRIZE.—A cheap tobacco prize can be made by cutting a mortise through a tree near the tobacco house, and putting into the mortise a prize beam 25 feet long. Have a moveable roof over the prize, and have a hogshead made either of good staves or planks, four feet eight inches high, and forty-two inches over the head, with very little bulge in the centre. Into such hogsheads prize ten or twelve hundred pounds by weight. In placing the tobacco in hogsheads to prize, lay every hand down, so that every hand is straight; lay in four courses, two to put out against the hogshead, and two centre courses, these courses always square across the course below. When tobacco is prized as above stated, it will keep without moulding for years, and command the highest price in the market.

Live Stock.

Hollow Horn in Cattle.

Editors American Farmer:

In the August number of your paper I expressed a hope to notice an article in your June number, page 186, "The Dairy," in the second paragraph, last paragraph, which I quote:

"Farmers and dairymen who feed their cows well and regularly the year round, scarcely ever find any difficulty with hollow horn, the latter being only another name for hollow stomach, or hollow chop-chest."

"Hollow horn" is a popular term for a disease which cattle are subject to, and from which large numbers perish, because the nature of the disease is not generally well understood, consequently the treatment is often wrong. It is one of the odd things which occasionally cross our path, that popular authors, from whom we often see quotations in our agricultural papers, as of high authority, should not treat this matter nearer to what the symptoms indicate.

I will make a quotation from J. S Skinner's book of 1867, page 266, number 208, "Horn distemper, or horn ail: A disorder incident to horned cattle. * * * This disorder may be known by dullness in the countenance, a sluggish motion, &c. * * * This distemper is generally brought on by poverty, &c." His remedy is, "perforate the horns two or three inches above the head."

Dr. Dadd, page 189, second paragraph, recommends just the reverse of the above. "Horn ail in cattle: And here, reader, permit us to protest against a cruel practice that is much in fashion, viz: that of boring the horns with a gimblet," &c. How is the inexperienced reader seeking information to relieve his sick animals to act? One tells him to bore the horns, without any further remedies. The other tells him not to bore the horns, and gives copious reasons, which I do not think amount to any more than Skinner's—further this deponent sayeth not.

Skinner says—"This distemper is brought on by poverty." This opinion prevails with many farmers, but those who have noticed the matter more carefully, can point to many cases of "hollow horn" where the cattle were fat enough for the shambles. Please allow me here to cite the herd of your humble servant. I have bred and raised all the cattle I have had (except my bulls) for a number of years. From the time they were calved, as long as I own them, they do not suffer for the best of food—hay, mill feed and corn meal—a comfortable stable, and regular attention; are always in "thrifty condition," yet many of them have had "hollow horn." I have had the good fortune never to lose but one, which was the first case I had. I have had several terribly hard cases since.

"Hollow horn," or "horn ail," is only a symptom of determination of blood to the brain, a disease which I should judge, from my own experience, cattle are peculiarly liable to.

The skull of the ox is filled with sinuses, or air chambers, which surround the brain cavity to protect the brain from too sudden changes of heat and cold, and also from severe concussions.

With continued and violent determination of blood to the brain, the sinuses become more and more engorged, the brain becomes more and more oppressed, which reacts upon the nervous system, affecting one or more of the functions of the body. Any one who will take the trouble to examine the head of an ox which has died of congestion of the brain ("hollow horn") will find the cavities of the skull engorged (as well as the brain) from the nasal organs to the base of the horns. The pith of the horn has generally lost its blood, and often the horn is entirely hollow, containing suppurative matter at the base. The symptoms may be early noticed: poor mincing appetite, which may continue for a number of days until the animal entirely refuses food, and ("loses its cud" as many say) ceases to ruminate. A dull moping motion—stupor—horns sometimes too cold and sometimes too hot—weakness—lastly, a vacant, senseless stare of the eye; with this symptom the animal is generally unable to get up without assistance and often not with it, and shows great weakness in the loins. Cows are most liable to it when calving, especially heifers with the first to the third calf.—The lacteal, urinary and generative organs are often implicated—all or either of which may sometimes be symptoms.

The remedies indicated are counter-irritants and abstraction of congested matter about the brain as rapidly as can be properly done. To do this, bore the horns whether hollow or not, whether the pith bleed freely or not; inject a teaspoonful of spirits turpentine into each horn; anoint the horns freely with spirits of turpentine; pour a tablespoonful into the cavity at the base of the horns; anoint freely from the head to the tail, particularly over the loins.

There is nothing so prompt and so thorough in its action, to use as a counter-irritant, as spirits of turpentine; but care must be taken to keep the animal comfortably sheltered from the cold and wet—otherwise it may do serious mischief. In severe and obstinate cases, where relief is not obtained in two or three days, repeat the anointing of the horns and along the spine. Care must be taken to keep the holes in the horns well open to let the matter discharge, which it often does in great quantities, especially if one or both horns be hollow.

Give five (5) dessert-spoonsful of a saturated solution of chlorate of potash three times a day—in severe cases every three or four hours—put into a bucket of water and let the beast drink it. If the animal does not urinate sufficiently, change the dose occasionally with half the quantity of nitrate of potash, or the citrate of potash.

There is nothing so appetizing, and so grateful to the stomach of the ox in this condition, as green apples. I have often known them to eat apples greedily when they refused everything else. Give half a peck three times a day, which soon brings the appetite for more substantial food.

If your cow be giving milk while laboring under this disease, be careful not to discontinue the milking.

Some very singular things have occurred in my experience with this disease, but it would make this article too prolix to rehearse them.

Some may object to boring the horn, as it would blemish the cow. In severe cases better do that than risk losing the animal without, although in mild cases it may not be necessary.

Before closing this I will remark, that I am satisfied numbers of cattle, especially milch cows, perish with congestion of the brain for want of timely and proper treatment.

Yours truly, WM. J. SCOFIELD.

Montgomery County, Md.

Hog Cholera.

We give in this number another portion of the report of Dr. Detmers, begun in our last, on the destructive disease, which goes under this title. He says:

The measures of prevention consist in removing the causes as enumerated above. If this is done, no other special treatment will be required to ward off the disease, and no medicines will be needed. To give medicine to a healthy animal is, under all circumstances, a bad practice, fraught with injury, and should not be done, unless it is intended to destroy injurious influences. To use medicine for the purpose of strengthening the constitution of an animal is simply folly, as just the opposite will be the result. But to the point: I am confident the epizootic influenza of swine, or the disease improperly called hog cholera, will cease to make its appearance, or, at any rate, will become a very rare occurrence, and will lose its epizootic character, if first, every large herd of swine is divided into several small herds or lots, each containing about three or four animals; if, secondly, each lot is provided with a comfortable pen or place to sleep in, which is free from filth, dust and manure, is well ventilated and provided with a good roof; if, thirdly, every hog or pig has access, several times a day, or as often as temperature, weather and circumstances require, to fresh and clean water for drinking and bathing, either in a large trough or in a brook, creek or streamlet; if, fourthly, no filth, manure or dirt is allowed to accumulate in any of the sties, yards, hog lots or pastures in which the hogs or pigs are kept; and if, finally, hogs and pigs receive always a suitable variety of sound and healthy food, which is not soiled with dirt or manure. I know very well some farmers will be dissatisfied with my advice, and would have preferred to be sent to the drug store for medicines. Others will think to comply with my prescription will be too much trouble altogether, and some of them may say: 'If we can not keep our hogs any more in the old 'hoggish' fashion, but must treat them like animals ought to be treated, we prefer to keep no hogs at all.' Very well, if they do not keep any hogs they certainly will not lose any, and their neighbors, who continue to raise swine, and take proper care of them, will be the gainers in a two-fold respect. At first they will reap the benefit from the scarcity of hogs thus produced; and, secondly, they will be amply repaid by their swine for the care bestowed upon them. At any rate, it will pay much better for any one to raise, for instance, fifty hogs, to keep them well in every respect, to lose none, and to develop them to first-class animals (so-called Philadelphia hogs,) than to raise 100 or 200 head, to keep them 'hoggish' to lose from fifty to

seventy per cent., and to produce animals that figure as 'scalawags' in the market reports. Moreover, the amount of food that is needed to produce 200 pounds of inferior, and frequently unhealthy pork—if the pig is kept on a manure heap in the barn-yard, or in a nasty hog lot, and in the old, common and careless fashion—will easily produce 300 pounds of good, healthy and palatable pork, if the keeping of the animal is always in strict accordance with hygienic laws! If the latter are never violated, epizootic influenza of swine, I am sure, will not make its appearance; but if the mode of keeping swine is not changed the disease will increase in frequency and in malignancy from year to year.

One remark I wish to make: In giving my views thus candidly and in plain language to the public, it has been my sole object, not to blame anybody, but to tell the truth, to point out the way which has to be pursued if it is desired to get rid of the disease, and to show the mistakes that have been committed, not by one farmer, nor by a few, but by a great many. Therefore, I ask every one who may find that he is guilty of having neglected his hogs, or of having treated them rather 'hoggish,' to accept what I have said in just that spirit in which it has been written, and he will be the gainer.

Treatment.

The treatment may be divided into two parts—a hygienic and a medical treatment. The former includes a removing of the causes, and is alike in many, or even in most, diseases of the greatest importance. The sick animal must be separated from the herd, and must be provided with a clean, dry, well-ventilated resting place, which is not exposed to drafts of air, and which affords otherwise sufficient protection against heat, cold and wet. The same, further, must have, besides pure air to breathe, clean water to drink, and healthy and easily digestible food to eat. If the sick animals are thus treated, and the causes promptly removed, a great many sick animals (provided, of course, they are not too far gone) will be saved by a proper medical treatment; but if these directions are not complied with, even the best medical treatment will be of very little avail. As to the use of medicines, I would recommend to give to each patient at the beginning of the disease a good emetic, composed either of powdered white hellebore (*veratrum album*) or of tartar emetic, in a dose of about one grain for each month the sick animal is old, if the same is of fair size, but not exceeding sixteen to twenty grains even if the animal is full grown or several years old. The emetic is easily administered by mixing it with a piece of boiled potato, or, if white hellebore is chosen (which I consider as preferable,) by sprinkling it on the surface of a small quantity of milk. Boiled potato or milk will not be refused by any hog unless the patient is already very sick or far gone, and in that case it will be too late to give an emetic. After the medicine has taken effect the animal will appear to be very sick, and will try to hide itself in a dark corner, but in about two or three hours it will make its appearance again, and will be willing, in most cases at least, to accept a little choice food; for instance, a boiled potato, a little milk, &c. At that time it will be advisable to give again a small dose of medicine, consisting either of a few grains (two to three to a full-grown animal, and to a pig in proportion,) of tartar emetic, or of the same amount of calomel, also mixed with a piece of boiled potato; or, if the appetite should not have returned, mixed with a pinch of flour and a few drops of water and formed into small round pills.

Administering Medicines.

A sick hog, I will remark here, should not be drenched with medicines under any circumstances—for a drench, given by force, is very apt to pass down the windpipe into the lungs as soon as the animal squeals, and frequently causes instant death. The tartar emetic has to be preferred, if the disease has its seat in the respiratory organs, or presents itself in its catarrhal-rheumatic form, and the calomel deserves preference if the gastric or bilious-rheumatic form is prevailing, but especially if the liver is seriously affected. Either medicine may be given in such doses as have been mentioned, two or three times a day for several days in succession, or till a change for the better will be plainly visible. It may also be advisable (but particularly if the typhoid character of the disease is very manifest) to mix for each hog or pig, now and then, a few drops of carbolic acid with the water for drinking, or with the slop. Animals that are convalescent and have been reduced very much by the disease, and are yet weak, should receive mixed with their food, small doses of sulphate of iron (copperas) say from five to twenty grains, according to age and size, but the use of iron must be discontinued if the patient becomes constipated, or if the excrements turn black. Those convalescents in which the morbid process has produced considerable hepatization of the lungs will be benefitted by giving them repeatedly small doses (from ten to fifty grains) of purified carbonate of potash, for the purpose of promoting the absorption of the exudation deposited in the tissue of the lungs.

Externally, a good counter-irritant, or blister, applied on both sides of the chest, and composed of cantharides or Spanish flies and oil (one ounce of the former to four ounces of the latter constitutes the proportion), boiled together over a moderate fire for half an hour, or in a water bath for one hour, will produce a very beneficial result, especially in all those cases in which the serous membranes of the chest constitute the principal seat of the morbid process. In most cases one application will be sufficient, provided the oil is thoroughly rubbed in and the disease has not progressed too far. If the first application should fail to raise a good blister (swelling and exudation,) a second one may be made the next day. In those cases, however, in which the morbid process has made too much headway, or has wrought too much destruction of tissue to admit recovery, the counter-irritant will produce no blister and no swelling whatever, a fact which constitutes a valuable prognostic symptom, for it indicates that the vitality of the animal is already very low, and that a further treatment will be of no avail. Fontanels or setons have nearly the same effect as a vesicatory or fly blister, but act slower, are less reliable and may otherwise cause some damage on account of the typhoid character of the disease by weakening the constitution of the animal.

Cows at Calving Time.

A correspondent writes to the *New England Homestead:* "Some farmers are always having bad luck with their cows at calving time, and they seem to think Providence is against them. Care and experience will prevent a great deal of our bad luck. Two or three of my neighbors lost cows by allowing them to drink all the cold water they wanted soon after calving. One lost a cow in this way: He put his cow in an under-ground stable to calve, very damp, the walls covered with ice; the cow never got up and soon died. She had cold chills, and weakness; no medicine did any good. A German had a cow about coming in; he thought she needed strength, and so gave her all the corn meal she would eat; he came very near losing his cow. I have used strong boneset tea with red or black pepper in it for some of these troubles, with success. The better way when your cow's time is about out is to put her in a stable by herself, loose at night; especially I would give but very little meal for a week before calving; bran, potatoes, roots, etc., are better; after calving give no cold water for two or three days; take off the chill with hot water; stir in a little bran, a pailful three times a day; after that you can gradually increase the meal without danger."

Impaction of Rumen.

The *Scientific Farmer* says: "A subscriber at Orange, N. J., had a valuable cow taken with impaction of the rumen, because of a surreptitious visit to the meal chest. A cow leach was called in during the absence of the master, who called the affection 'tail all' and prescribed the removal of her caudal appendage. The deed was done, but no relief to the cow resulted. At this juncture the owner arrived on the ground, and, after forcibly ejecting the quack, proceeded to give injections and drenches of soap suds. This treatment soon produced the desired result, a speedy cure. Suit was afterward brought in court against the cow leach, and a judgment of fifty dollars obtained as the price of the cow's fly-whisk. The legal steps were all right, even from a scientific point of view. But we should advise a different drench: First, a strong purgative, such as a pound of Epsom salts in three pints of ale or gin and molasses; second, a mild antiseptic after one hour, as follows:

Liquid ammonia	1 oz.
Warm ale	1 qt.
Ginger	2 oz. (*Clater.*)

"The injections were correct, and in such cases should be continued every half-hour until relief ensues."

Short-Horns in Maryland.

Mr. L. R. Schnebley, of Fairview, Washington Co., Md., in remitting us for the little advertisement of Short-horn calves in our November issue, writes, November 14th:

"The advertisement has already brought me several inquiries. My herd of Short-horns, although a small one, is now looking exceedingly well, and I think is second to none in the State in regard to form and pedigree, and I shall hereafter offer young stock of this most profitable strain of cattle to farmers at prices that men of very moderate circumstances can pay."

Over-Reaching.

Many horses have the very unpleasant habit of striking the toes of the hind shoes against those on the forefeet. Most horsemen will agree that it is a fault attaching to some of the best, as well as the worst of horses. It more frequently occurs with young horses, and they often click on the turf or soft ground, and not on the road. It arises from the too great activity or length of stride of the hind legs; the forefeet are unable to get out of the way in time; therefore, anything which detains them, such as a soft or heavy soil, must assist the habit. The principal point to be remedied is the intolerable noise, from which the evil derives the name "clicking"; and this is often effected by making the hind shoes square at the toe, and leaving the toe of the crust somewhat projecting over the shoe, by which plan the crust receives the blow instead of the shoe, and does not make any noise. It sometimes happens that, from the repetition of these blows, the crust is worn so thin at the toe as to pruduce or threaten lameness, in which case the plan of shoeing mentioned must be desisted from, and we must put up with the noise to avoid the greater evil. When a square-toed shoe fails in preventing clicking, it will sometimes happen that a shoe pointed at the toe will succeed; which, no doubt, arises from the circumstance that the shoe, having so small a surface to come in contact with, fails to strike the fore shoe and goes within, or by the side of it.—*Live Stock Journal.*

Mothering a Lamb.

A contributor to the Germantown *Telegraph*, writing about rearing sheep, says: "It is sometimes the case when a sheep has twins that she owns but one, unless she or they have help. Usually if she is put in a very snug pen immediately after the lambs are dropped, she will accept the situation. If one stubbornly refuses to own her offspring, just put her head between two stakes driven into the floor of the pen and let her be there. I never knew one I could not subdue. By all means have a nursing bottle on hand and feed the lambs just enough to keep them hungry and smart; and if the sheep are poor milkers, give them shorts and potatoes with plenty of salt, sulphur and water. Cut the tails pretty short at three days old, if the lambs are smart, but within the first week usually. Keep off the ticks, and the lamb will be fit to sell in season for the dam to get in good order for the winter, and a sheep that comes to the barn fat is about half wintered."

CURE FOR CHOKING CATTLE.—Should cattle be at any time in danger of choking by reason of any foreign substance sticking in the throat, take of fine chewing tobacco enough to make a ball as large as a hen's egg; dampen it with molasses so that it can be compressed into a ball, and will adhere closely; elevate the animal's head, pull out the tongue, and crowd the ball as far down the throat as possible. In fifteen minutes it will cause sickness and vomiting, relaxing the muscles so that the potato, or whatever may be choking it, will be thrown up.—*Lancaster Farmer.*

Poultry Yard.

Fattening and Preparing Poultry for Market.

A large poultry commission house in New York gives the following advice on the proper mode of fattening poultry and preparing it for *that* market:

Never let poultry forage and shift for themselves, for at least *ten* days before killing, for they are apt to range in the barn-yards and pick up filthy food, which permeates all through the bird,—its flesh frequently becoming so tainted that it is unfit to be eaten.

The best method for steady and regular profit, or for domestic use, is to keep them constantly in high feed from the beginning, with plenty of clean, cool water; then they are always ready for the table, with but very little extra attention; their flesh will be juicier and richer in flavor than those fattened from a low and emaciated state, always commanding quick sale, at the highest price in the market; a healthful, nourishing and restorative food.

Some "cram" their poultry, before killing, to make it appear heavy; this is a most injudicious plan, as it shows at a glance the dishonest intention of the shipper to benefit himself and swindle others, in his poor effort to obtain the price of poultry, for corn; the undigested food soon enters into fermentation, and putrefaction takes place, injuring their sale a great deal more than is gained in weight. Fowls should *always* be allowed to remain in their coops at least twenty-four hours previous to being killed, without food, then they will keep longer and present a better appearance.

The best food for fattening fowls, old or young, is barley meal or mixed with equal quantities of corn meal cooked and fed *warm*, (a small quantity of brick dust in their drinking water is recommended,) which will make flesh faster and more solid, giving it a fine golden color after being dressed. Good food is positive economy.

The best mode for killing poultry, as it causes instant death without pain or disfigurement, is to suspend the birds by tying their legs firmly to a pole or heavy wire across the killing room, a convenient distance from the floor, and opening the fowl's beak, and with a sharp-pointed and narrow-bladed knife, make an incision at the back of the roof, which will divide the vertebræ and cause immediate death.

Dry-pluck the feathers and pin-feathers all off neat and clean, while *warm*, without breaking the skin, then plunge it into a kettle of very hot water, holding it there only long enough for the bird to "plump," then hang it up,—turkeys and chickens by the legs, and ducks and geese by the heads. Do not remove the entrails, heads or feet. This mode gives the poultry a nice buttery, golden color, that attracts the eye of the epicure.

Pack, only when thoroughly dry and cold, (not frozen,) in medium-sized, clean boxes or barrels, in thoroughly cleaned and dusted *Rye* straw, and to be extra nice, wrap each bird in clean, white, (not printed) paper, fold the head under its body, legs stretch out, lay it in the left hand corner, back up, with its head toward the end of the box, fill the first row, then commence the second in the same way, only let the bird's head pass up between the rumps of the two adjoining ones, this makes it solid; the last row reverse the order, placing the head towards the end of the box, letting the feet pass under each other; should there be space between these rows wide enough to lay in a few side ways, do so; if not, fill in tight with straw, so the poultry cannot move. This gives uniformity of appearance and a firmness that will prevent moving or chafing during transportation; over this layer place straw enough to prevent one layer from coming in contact with the other, and add other layers until the box is filled *full*. Great care must be taken in packing, not to break the skin, for during transportation such places turn black and injure its sale.

Mark the package on its *side* (tops often get lost) plainly the *number*, *variety* and *weight* of the contents, then we can tell at a glance, if it is what the purchaser wants, without useless handling, also mark with our shipping stencil, furnished free on application.

Lice on Fowls.

A Maryland granger, whose initials we recognize as those of our experienced correspondent, Mr. Wm. J. Schofield, from whom a valuable article will be found in another department of this issue of the *Farmer*, writes as follows to *The Farmer's Friend* on this subject:

I keep from 100 to 150 chickens in a small yard with hen house, and a shed attached enclosed for roosting and nests. The house is crowded at night with as many as can get in, the balance roosting in the shed. I have not seen any vermin about the house or shed, or on my fowls for years.

I first got gas tar, which costs about ten cents per gallon, and painted the house inside and out, the roosts, and also the roosts of the shed attached. Thereafter I washed the roosts with crude petroleum, (using a common whitewash brush) every spring. There is another advantage in using the gas tar and petroleum—they are both powerful disinfectants. I have used the above remedies for a number of years, and, although my fowls are very much crowded, I have had no disease among them except cholera, which they occasionally get if I let them run out. But, so far, I have soon stopped its ravages by keeping them in the yard and feeding them on Indian meal dough, mixed with strong Cayenne pepper tea, which they eat greedily and which promotes their health in other ways.

I give them the above occasionally, whether they show sickness or not. W. J. S.

Grange No. 60, Maryland.

WINTER QUARTERS must now receive attention, and as the fowls leave the trees and exposed roofs, see that they do not go into a dirty house. Clean up thoroughly; let the whitewash brush be assisted by a willing hand and a sharp eye.—See that you have no tyrants that get up to roost first, and keep up a constant quarrel with all the other birds as they come in; quiet such a one in the pot. Also watch and see that no diseased ones get in the house with the rest, or they may infect the others.

The Apiary.

Wintering Bees.

A New York cotemporary has the following suggestions on this head:

If wintered in the open air the following are important points to be attended to: Each hive should in some way be prepared against sudden reverses of heat and cold. The entrances should be toward the south or east, with good protection on the other sides. A good evergreen hedge will check the force of winds and prevent disturbance. The hives should set firmly on legs or benches a little way above the ground, to prevent the combs from molding. If large hives are used, division boards on either side closing up to about nine frames of comb, will leave an air chamber on each side of the bees. This, with a similar protection in front, will greatly aid in avoiding sudden changes. It is very important that the front end or entrance should be properly closed. Much the best plan is to have a portico enclosed all around for the alighting board. Into this fix an outer door, having at one end a small exit for the bees, so that mice cannot enter, and at the opposite side from the entrance into the hive, so that no sunshine will fall in the entrance and tempt the bees out when it is too cold to fly. Some fine day in winter this outer door may be removed so that the sun can shine full into the hive, when the bees will fly out, void their fæces and return in better condition to their hives, which are again to be closed. Hives without porticos should have the entrance in some way constantly shaded during winter, or the sunshine will often tempt bees to fly abroad when it is too cold, and many will perish in the snow, by the wind or on the cold ground. It is important also that proper ventilation of the hives should be given in winter. By ventilation we do not mean a constant current of air, but some mode by which the damp gases will arise from the bees. The air in a hive, like that in a close room, soon becomes loaded with gases and vapor. If the hive is perfectly tight, except at the lower entrance, the dampness will congeal in ice on the inside of wooden hives, and in severe weather continue to accumulate until a warm day melts it loose. It then floods the comb and cluster, and if succeeded by a cold spell the bees will be at once chilled and lost. By proper ventilation we mean an arrangement such that the gases can escape without the passage of a cold stream of air around the cluster. This is most effectually attained by spreading a thick quilt of several thicknesses over the bees and filling in above with wheat chaff, cut straw or something which will protect and at the same time absorb any moisture which arises from the bees. We would recommend a hole an inch in diameter in the quilt for feeding purposes. It is easily closed with a piece of wool or a flap on the quilt which may be laid over at discretion. Above this quilt an old bag full of chaff or cut straw, sawdust or excelsior, will be much more readily handled than when the absorbing material is placed directly in the hive.

Agricultural Calendar.

Work for the Month—December.

The closing up of the work for the year, and preparations for the winter now near at hand, and which may be of such a character as to prohibit many of the more active labors on the farm, will give ample employment for the most industrious; and the thoughtful and forehanded will also find much to be done in the way of planning and preparing for the work of the coming spring.

The Corn Crop should be securely housed where it is safe from all marauders, whether four or two-footed. See to it that fodder and husks are likewise neither neglected, but both stored where they can be conveniently reached as needed.

Tobacco should be stripped as opportunities present, care being taken in the handling as well as in the assorting of the several grades. Attention to the appearance of the crop is fully repaid when the time comes to market it. Be on the watch that no heating or discoloring occurs in the bulk.

Plowing.—Stiff lands for spring crops may be plowed as opportunities offer, and are benefitted by exposure to the winter weather, and the work done now advances that of the busier spring.

Live Stock.—The humane care of farm animals during the winter is one of the most pressing duties of the attentive farmer. Their comfort and health depend upon constant and unremitting attention. Horses should have regular exercise, and those working, extra feed. After working, especially on muddy roads, their legs should be rubbed dry when they are stabled for the night, and they should have the advantage of comfortable bedding. The regular use of the curry-comb and brush is, of course, to be insisted upon.

Milk cows ought now to have the richest food available; and the provision, if fortunately made, as we have so often recommended, of succulent food in the form of sugar beets, mangels or turnips, will add juiciness to the daily rations which will prove at once healthful and toothsome, helping at once to preserve both the health and the flow of milk. Do not allow your cows to run down early in the season; there is no policy more mistaken. It is a hard task to bring them up later. Far wiser not to let them fall off at all. Do not forget that, if they cannot have regular, an occasional carding and brushing of cows redounds very much to cleanliness and health.

Stabling for cows giving milk should be warm but well ventilated; not air-tight, but not exposed to every wintry draft. Remember to give in-calf cows and heifers substantial and liberal feed. There is no wisdom in wintering at the straw pile either them or young cattle and colts. The half-feeding, semi-starving, sort of wintering is a stunting process which does not produce stock likely to be admired or to become highly useful. Keep young stock growing all

the time—when they are not progressing they are declining.

Sheep need shelters for times of rain and snow, but they should not be too close. Except in falling weather, they are better in the fields. Give a little grain and bran occasionally, and do not neglect salting them regularly. Water is also an essential, as well in cold weather as warm. If you have a crop of ruta-bagas, they will come in admirably for your sheep.

Fattening Hogs ought to be pushed ahead as fast as possible, if not already fit for the knife. Be careful that they are kept clean and dry, supplied regularly with ashes, salt and lime, and that they have plenty of clean water. A change of opinion has occurred in regard to the profit of cooking meal for fattening hogs, as will be seen by the experiments noted below:

Mr. J. M. Billingsly, of Spring Valley, Indiana, took twenty hogs, crosses of the Chester White, Poland and Berkshire. He divided them equally, to the best of his judgment, ten in each lot. On the first of December the lot he intended feeding with cooked corn meal weighed 2,110 pounds, and the lot to be fed on corn in ear weighed 2,200 pounds. He gave them fair treatment, dealing alike as to quarters and feed, except that one lot was fed on cooked meal and the other corn in the ear. They were all fed as much as they would eat clean. Those fed with meal gained per day 1.39 pounds. Those fed with corn 1.46 per day. In fifty-one days the ten hogs fed on cooked meal gained 670 pounds, and those fed on corn in the ear gained 700 pounds.

Mr. R. L. Bingham, of Bloomington, Grant county, Wisconsin, states that, after purchasing an Anderson steamer, he commenced, February 15th, an experiment in feeding nineteen pigs about nineteen weeks old, a cross of Berkshire with common stock. Prior to the experiment the pigs had the run of the farm, and had been fed as much raw corn as they would eat. Then for a period of twenty-eight days they were fed as before with corn in the ear and all the water they could drink. At the close of this period their total gain in weight was 667 pounds, made from feeding 55 bushels of corn—a gain of 12 pounds for each bushel of corn. They were then fed with thick mush, made by bringing the water to a boiling heat, and then stirring in the meal ground fine, with the steam still on, allowing the meal to cook five or ten minutes, and adding salt; this was fed to them warm three times a day, as much as they would eat clean. At the end of twenty-eight days they were again weighed, showing a gain of 676 pounds made on 75 bushels of corn, less toll—a gain of 9 pounds for each bushel of corn consumed. He then put 11 of the pigs on raw corn again, continuing to feed the others with cooked meal. May 25th, after a trial of six weeks, those on raw corn averaged a gain of 44 pounds each, and the others an average gain of 37 pounds.

And the following paragraph, which we clip from the New England *Farmer*, shows a similar result:

According to a series of experiments conducted through a term of six years, at the Maine State Agricultural College, it was proved that raw corn meal for feeding swine is more economical than meal that is cooked. This accords with our own experience, although contrary to common opinion. The extra cost of labor and fuel required to cook food for swine is no small item in a small herd, and must require a considerable increase in the gross number of pounds of pork from the food consumed to make the operation a paying one.

Poultry ought to be kept in warm, dry quarters, and well fed, with some attention to varying the character of the diet. Sour and skimmed milk, scraps from the kitchen, scalded bran, &c., are all suitable for fowls.

Composts and Manures.—Lose no opportunities of collecting materials for composts. Fallen leaves, road scrapings, muck, litter, straw and other refuse are valuable for this purpose. So are the house-slops, the contents of the privy vaults, the sweepings of the poultry-house. Occasionally mixing and turning over these varying and often abundant constituents will by spring give you a largely increased pile of material, rich in constituents valuable as plant food.

Drains and Ditches.—See to these occasionally, that they are kept clean. Be especially careful that surface drains are unobstructed. Ditching can often be done cheaply and to advantage during this month.

Fences and Gates.—Look to these and make any needful repairs.

The Dairy.

A Herd of Guernsey Cattle.

Mr. A. B. Allen, a well-known writer on live stock matters, thus describes in the *Country Gentleman* a herd of these cattle which he inspected:

"As I caught the first sight of them, fifteen Guernsey cows and heifers, standing in a row in their stalls on board ship, with their heads presented toward me, I thought I had seldom met with a handsomer or more blood-like show in the way of cattle. I found the horns and heads of some of them quite fine, others moderately so, and none really coarse, as is somewhat apt to be the case with this great dairy breed. The eyes were prominent, and glowing like those of the deer, with a broad pale-yellow rim of skin around each; the nose a bright, clear orange; the color of their bodies varying from pale yellow to pale red; some entirely solid, others patch with more or less pure, distinct white. The skin is a rich golden yellow, is very mellow, with fine silky hair, and an undercoat of soft fur, which indicates high quality. The neck, shoulders and limbs are very fine. The crop and ribs of one was equal to the Devons; the loins good, with a spread across the knuckle bones nearly as broad as the average Short-Horns of the same size. Two I measured were over two feet wide at this highly desirable point. From there to the pin bones, the drop in the majority of the cows is too much for beauty, and ought to be remedied in their future breeding, which may be easily done by careful selections hereafter, especially of the bull. But several of these heifers were as nearly level as may be from the setting on of the tail and along the back to the top of the shoulders,

making quite a handsome appearance. The body is deep, the pelvis broad, the legs sufficiently short, the escutcheon, milk veins, and udder, excellent.

These cows are a size or two larger than the Jerseys usually attain, and most have teats long enough to fill the hand of a man, and make it easy for him to milk rapidly. This is a very important point in a cow, considering that men generally do the milking throughout the United States.

The milk of the Guernsey is said to be a little richer generally than that of the Jersey, and the butter made from it is of a more uniformly golden color. These cows are hardy, thrifty, and when dried off, I am informed, fatten rapidly, and make first quality beef.

There are Guernseys of other colors, but the shades of pale yellow to light red, either solid or broken, with more or less pure white, are much the handsomest, and are most highly esteemed, as indicative of better quality of flesh and the richest milk. I understand it is the intention of the Guernsey breeders to adopt this as the most perfect standard, and give all other colors the go-by as fast as possible hereafter. For my own part, I would import and breed no other color; and I hope Americans will adopt this as their standard, and not recognize any other, especially when they come to get up a Guernsey Herd Book. The first importation that I have seen of this breed was made by the late Nicholas Biddle, of Philadelphia, and all these were of the pale yellow color, if I recollect aright. Thus it may now be called almost an established color among us.

Upon the whole, I must confess that I am highly pleased with these Guernseys, and think, as cream and butter cows, this breed is destined to become popular among our dairymen.

Soft Butter.

A correspondent of the *New England Farmer* says:

"I have made more than eighty tons of butter since I commenced dairying, and, by dint of observation and experience, have come to know certain facts which I did not know at the start. In the first place, no sane man should let a winter go by without providing for a good stock of ice, as not one dairyman in twenty can have his butter come firm and good without that commodity, and just the pleasure of having it to use in the hay-field will pay for the storing. I confess I can't quite sympathize with those who are in trouble with soft butter, but I will make a suggestion or two that may be of service to some of my brother dairymen. My cellar is so constructed that it is cool, so that it is a rare thing that my cream, after standing twenty-four hours, is not cool enough to churn. I never want cream churned the day it is taken off. It does not come to butter as easily, nor make as good an article as to let it stand and ripen, and, at the same time, get the temperature lower.

My cellar is ten feet deep, twenty wide, and forty-five long, cemented on the bottom. I exercise a great deal of care about keeping my cellar cool; I take out the windows on cool nights and no others, and shut them early in the morning.

Now, if I could not get my cream sufficiently cool without, I would have a box made of plank, deep enough to hold my cans of cream, and three or four inches to spare, so as to set them on some bars at the bottom, also to lay chunks of ice—have a pipe run out at one corner to carry off the water into the drain. I always make it a point to churn early in the morning, while the other hands are milking, which would be a great help to those churning above ground, as one can get it out of the way in the cool of the day. My churning-room is just out of the main cellar, twelve by thirty feet, and ten feet deep, and so cool I find no trouble at all in handling butter in the hottest weather.

Where one churns up stairs, and the cream, of course, is growing warmer all the time in very warm weather, the temperature should be, at the start, as low as fifty degrees, if possible.

I would like to say a word on working butter, if it would not make this article too long. It has long been a mooted question whether to work the butter once or twice with the hands or with a butter-worker. Some savans have said the hands should never touch the butter. As to the first question, if butter comes all right, and a person understands it, he can make a better article to work it only once; if it don't come right, it can be very much improved by letting it stand a few hours and then working it again.

I made the inquiry of Prof. Arnold, at the dairymen's meeting at Montpelier in '75, if he worked his butter twice; he said he worked his partially, and let it set half an hour and finished it. I have tried different ways of working butter, and have come to the conclusion that if one understands it, and the hands are all right, there is no better machine than the hands when the butter is to be packed, but if lumped, a good worker is preferable.

H. A. Willard said, at St. Albans, that in the best butter sections of Europe they worked the butter with the hands.

Beets and Carrots for Cows.

Last year I raised a lot of mangolds and carrots. The mangolds were gathered first and put in the cellar; afterwards the carrots were gathered and corded up on top of them, so that when I began to feed them to my cows, the carrots came first. The cow gave about her usual quantity of milk, excepting the usual shrinkage of the occasion of cold weather and being put upon dry fodder. Fearing that the beets would not keep as well as the carrots, and also thinking that they possessed better milk-producing qualities, I was anxious to get at them. Accordingly, I removed part of the carrots and commenced feeding beets, when, to my surprise, my cow began to fall of her milk until the deficiency reached about one-third. Wishing to test the matter still further, I changed back again to carrots, when her milk increased to about the usual standard. The quantity fed was about the same in either case—about a half bushel basket three-quarters full. If there was any difference, it was in favor of the beets.—*Cor. Rural New Yorker.*

Horticulture.

Horticultural Societies.

Their Acts, Objects and Uses.

Messrs. Editors American Farmer:

We concede that honest differences of opinion may be held, as to what should be the true policy, aims, purposes and designs of these societies; and what should constitute the leading branches most desirable, profitable and useful, without ignoring in the least the beautiful, or neglecting the picturesque and ornamental.

With all due deference, we give expression to our thoughts, which may not be worth much, in regard to the management and policy preferred and exercised at the late annual exhibition of your State Horticultural Society.

As was the case with your intelligent correspondent, Mr. Kerr, we had not the pleasure of attending the exhibition, as we had hoped and intended, and therefore cannot speak from personal observation; but from representations derived from different sources, we are led to believe the pomological department was rather *scant*, and not so creditable to a society of such liberal means and high standing as should have been desired; and that, to a considerable extent, it was a failure.

We are not disposed to find fault with the doings of the executive committee on that occasion. If errors were apparent, we may suppose they did the best in their power to render the show attractive.

We do not know the circumstances, nor are we informed of all the disadvantages under which they labored; but this we know, that the exhibition of fruits could not be otherwise than meagre, if the vernal frosts of last spring cut such capers in Maryland as in Virginia. Its effects were most fatal to our fine and tender fruits, which were a complete failure, and all suffered more or less. The only apples that survived, and proved their hardiness, were the Winesap, Genet, and some Pippins. The Genet not only as being hardy, but from the fact of its blooming two weeks later than other varieties, it entirely escaped. All the varieties named bore heavy crops. This misfortune, however, was not without some use, as it gave us a hint as to what we should plant to be sure of crops in frosty situations.

The fruit show doubtless was influenced by the very unfavorable season, for which the committee was not responsible; but there should have been a fine display of vegetables.

We have not before us the schedule of premiums prepared for the occasion, but presume they were sufficiently liberal. If they were not, *that*, certainly, was a fault. We would respectfully suggest that the premiums appertaining to fruits and vegetables, if the funds will allow, should be examined, and extra inducements offered to fruit-growers and gardeners, to induce them to aid in making a display worthy of your young and flourishing society, and of the great fruit State they represent; so as to insure at the next annual exhibition a fair display of the *substantial products of the State* and adjacent parts; as every branch of horticultural industry, if we mistake not, is open for competition to all.

We are sorry to say in this connection, that our Virginia Horticultural Society is sadly wanting in vitality. No exhibitions, no meetings, no capital, no effort that we are aware of; and horticultural pursuits like those of your State are of vital and increasing importance here.

Let it not be surmised that we are inimical to brilliant and attractive floral displays. They are a means of success, *pecuniarily*, that the society cannot afford to discourage; and a fine display in this direction is in other respects of high importance. The public taste for the beautiful in nature is increasing as we advance in the art of floriculture. But, in our opinion, we should give precedence to the less attractive but more valuable, luscious and indispensable products of the orchard and garden, the valued gifts of Pomona.

> "He brought me into this delicious grove.
> This garden, planted with the trees of God,
> Delectable both to behold and taste."

The blossoms and flowers that enamelled the walks and hung around the verdurous walls of Eden, so pure and beautiful, were all especially gay, sweet and various; but no less interest was taken in the *goodly trees* "laden with fairest fruit."

The directors of the society laboring under the disadvantage of an unpropitious season for fruits, bent their energies in other directions to secure success and insure patronage. How far they succeeded those who attended alone can tell. We believe, in some respects it was a splendid success, notwithstanding unfavorable weather, &c., and that the committee and officers of the society deserve the encouragement of an appreciative public. If they failed in other respects, we hope they will not be discouraged, and should regard a little criticism as a salutary incentive to future exertion and liberal views on the subject of all horticultural pursuits, and especially towards the pomological department.

We claim that the elegant arts should be made to grow up side by side with the useful and profitable, but not to overshadow or displace the substantial and luscious products of daily necessity and commercial value.

We purpose, as our time is limited at present, to give some further general views, as we may have opportunity, on the subject of horticultural and pomological societies,—their objects, uses, and mission,—and show their important bearing on the productive industry of the country.

J. Fitz.

Keswick Depot, Albemarle Co., Va.

Protection from Birds.

In reply to a query as to the means of protecting fruit trees and vines from the depredations of the birds, we will mention a contrivance which is claimed to be a complete remedy—to run twine—common cotton twine will answer—around the exterior branches at the top and bottom, and the thing is done. This is for trees; for strawberries, grapes, raspberries, &c., each one must be the judge of the manner of applying it. We know that in cornfields, by enclosing the field with a single line of twine on poles some eight or ten feet in height, it is a protection against crows. It is easy to try.

Manuring Orchards.

This is what the *Journal of Chemistry* has to say on this point:

"There would seem to be no good reason why, if we wish to raise good orchard fruits, we should not manure our trees. People often look at trees growing on rocky hill sides, and argue therefrom that trees can grow without manure. They know that potatoes and other vegetables must have manure or they will not thrive, but they regard trees as a different order of vegetation, something that can thrive and flourish where nothing else would. But, in the case of trees on rocky hill-sides, the land is often anything but poor. The rocks themselves frequently contain valuable mineral matter, which, as the rock decays, is presented in a form that plants can feed upon. Then whatever vegetation grows among the rocks remains there to decay, and even leaves and other foreign substances that blow into the crevices formed by the rocks make a valuable plant-food, on which the tree thrives. Indeed, trees in apparently poor, rocky places are really much better off than many trees in orchards, where they are in what appears good land.

In more level land trees must be manured. In many cases, it is as necessary to the best success that trees have an occasional manuring as it is that any other crop should have manure. There have been many discussions as to whether manure for fruit trees should be applied broadcast or ploughed in. For orchard trees there is no rule; it depends on circumstances. If the trees are on ground where vegetables are grown, the manure is, of course, turned in for the benefit of these crops, and the roots of the fruit-trees fight with those of the vegetables for some of it, and get it, too. But there are many orchards, where no crops are grown but the trees, and then it is an excellent practice to apply manure as a top dressing at least every other year, if you would have them bear an abundance of good fruit.

Winter Protection of Plants.

The *Germantown Telegraph* says: "The tying-up, or rather strawing-up, process to protect half-hardy roses and vines from the winter's frost, has in no degree diminished of late, as we see in many places. Sometimes it answers pretty well, when the covering is not too thick or too tightly drawn together to smother the poor thing, as too often happens. At best such plants do not require much protection, and might with advantage be left open on the north side, as it is the sunny side that does the mischief by its thawing and freezing. A good exemplification of this can be seen in severe winters on the ivy—that on the northern side of a building is green, full and undisturbed, while that on the southern side is sometimes completely destroyed. The best way, however, to preserve all half-hardy plants, when it is convenient to do so, is to prune and then *to lay them down* and cover with a couple of inches of soil. They will come out in the spring as fresh as they were in the fall and without the slightest injury.

The Vineyard.

Maryland Wines.

Messrs. Editors American Farmer:

After an interval of many years, I again have the pleasure of offering you samples of wines grown by me on the banks of the Severn. My vineyard at Round Bay, which you visited in *ante bellum* times, was sold with my old "Severn Side" estate in 1860. Since the war I have been patiently laboring to re-establish the business on my farm adjoining the city of Annapolis; and with what success both in quantity and quality, my cellars would display to you, if you could take time to visit them.

The wines made by me at *Severn Side*, were from the Catawba and Isabella grapes, then considered the best varieties. They were obtaining an extended and merited celebrity when the war induced me to abandon their cultivation. I was somewhat surprised to learn last week, from a gentleman of your city, that he still had some of my Severn Side Catawba in his wine-room; and he added that he considered it superior to some of the rare European wines, which are put on the hotel bills at $4 per bottle.

The Catawba rots so badly that I did not find its cultivation very profitable, though I then readily sold it for $8 per case. In Ohio, where it was first extensively grown, the vineyardists of late years have been gradually replacing it with more hardy and prolific varieties. The late Nicholas Longworth, who was the founder of the wine business at Cincinnati, and one of the founders of the city itself, was never satisfied with the Catawba as a wine grape; and frequently advised me, when a young man, to sow grape seed for the purpose of getting better sorts. He thought that if a grape equal or superior to it in flavor, and possessing the good qualities of hardiness and productiveness, could be obtained, there would be "millions in it;" and doubtless he was right.

I have not planted many Catawba vines here, but if an experiment which I am now making, of *grafting it on Concord roots*, should result in its yielding better crops, I will propagate several acres of it in that way. If, as supposed, the difficulty of raising good crops of Catawba is that its delicate roots are not sufficiently resistive to the attacks of the Phylloxera, then grafting on the Concord should be a remedy.

The varieties I have planted most extensively here are the Ives, Concord and Clinton; with some Norton's, Martha and Gœthe. My vineyards now cover about 20 acres, though not over a third of the vines are yet in bearing. I train to stakes, and so long as I can obtain them cheaply, shall prefer it to any other mode. My land is a rich, dark sand, well drained; and never sticky after the longest rain; and at all times soft to the foot. The surface is slightly rolling, and my vines occupy every exposure, ripening equally well in all.

Volumes have been written about the best soils, &c., for grapes, but in my communications to your journal and others for the last 20 years, I have always insisted that there were none better than our rich tide-water sands; and our climate is as favorable as any. Some authors contend

that the rich virgin soils of the West are the best for the vines, especially those found on the high bluffs of the great rivers. Others think the islands of Lake Erie unequalled locations for vineyards. Then there is Crooked Lake in New York, where they make excellent champagne; and also, I am inclined to think, some very *crooked* wine. Some writers in your cotemporary, "*The Southern Planter*," of Richmond, commend the Piedmont region of Virginia, as a grape-producing country. Then there is the Scuppernong region, but as that grape is *sui generis*, the Carolinas must be allowed to enjoy its reputation. May they reap a rich reward from it. As to California, well, what think you of its wines? The fashion has been to praise all the products of the Golden State. Its vineyards cover tens of thousands of acres. Its pears, too, are huge and beautiful, but flavorless. I would not exchange a peck of my Bartletts or Seckels for a car-load of them. But to return to grapes. The fact seems to be that those varieties of American vines classed as *hardy*, thrive in almost all soils and climates. I am told that even our Northern neighbors of Canada made a very creditable display of wines at the great "*what do you call it*" in Philadelphia.

The best of the Latin poets tells us that Bacchus loves the hills. I thought so in former years, and planted 30,000 vines on the steep and picturesque hills which overlook that most beautiful of Anne Arundel's lovely waters,—Round Bay. But the waste of soil from washing rains, and the labor attending the cultivation in such situations, are ruinous. My advice to you, if you intend to plant a vineyard, is to shun the hills. Seek the plains, and plant your vines at such distances that your plows may be run in all directions. Do this in any good dry soil; and the god of wine, with his jocund crew, will surely smile upon your labors.

The case sent you by express contains Ives and Concord wines, (vintage of 1875,) the only sorts I have yet bottled. My Clinton wine is not fully ripe, and promises to be first-rate. I have a wine made by mixing the juice of several varieties, which, with more age, will be very good. This I have called the *Peggy Stewart* wine, and shall have an appropriate label engraved for it. Of course all Marylanders will understand how this name should have suggested itself at this time in this locality. The brig Peggy, with her obnoxious cargo of tea, was burned by the patriots of the revolution within a mile of this vineyard. I am inclined to think that the best wines of our country will yet be made by mixing the *must* (fresh juice) of several sorts of grapes; and the proper proportions of each will be ascertained by a series of careful experiments. The Peggy Stewart wine is the result of an accidental commingling of several kinds of grapes to fill the press at the close of the vintage.

As the senior editor of the *Farmer* is a native of Annapolis, and if not quite old enough to have witnessed the conflagration of the Peggy, he has perhaps, when a boy, fished for perch around her charred timbers, which are said to have remained for many years upon the bar of Windmill Point, I should like him to taste some of this wine, and which will be forwarded in time for his next Christmas dinner. [We will.]

The Ives and Concord sent you, have the slight and healthful acidity of all natural wines. But we are such a nation of whiskey drinkers, that I fear it will be long ere our pure native wines become popular. Many of our people who are wine drinkers, have become so accustomed to the strong and sweet artificial and falsified wines that fill our markets, that they do not appreciate a pure article. A gentleman to whom I sent some of my wine the other day, remarked to me that it had a decided grape flavor, but somehow it did not taste like wine. His taste had doubtless been so vitiated by doctored wines (so called) that he failed to recognize the genuine.

My wines are especially characterized by their fruity flavor, which I retain by my mode of fermentation; and the public, to whom they are now offered for sale, may be assured that they have at least the merit of being perfectly pure. Those persons who have tasted wines in the wine-growing countries of Europe, will not need to be told this after drinking it. Ladies, and those who like sweet wines, often prefer to add a little sugar to the glass; and this, with ice, makes a very refreshing drink. But to my taste, and as dinner wines, I much prefer them just as they are. Our good housekeepers hereabouts do say that the *jellies* made from these wines are unrivalled for richness and flavor. Between us, I think it a great waste of good wine to convert it into jelly; but those who will make that article, should certainly use our pure and fruity native wines.

In the last number of the *Farmer* you speak of having had the pleasure recently of meeting in your city, Mr. George Husmann, of Missouri. The mention of his name induces me to add a few words concerning his quite popular book on Grapes and Wine. It has done much to stimulate the cultivation of the vine in the United States; and together with the useful hand-books of Muench, Reemelin, Buchanan and others, should be read by those who are about to begin the business.

Though I do not approve of all of his suggestions, yet it is one of the most practical works yet published on the subject; and we can afford to laugh at the gratuitous *fling* at the South, with which Mr. H. closes his volume. It might be well, however, to caution any of your readers who are about to plant vineyards, that the statistics of *cost* and *profits* given in the book are inapplicable to the present time. Neither grapes, or wine, or cuttings, can be sold now at the high prices realized by him during the flush times of the late war. Very naturally he thinks the western and southwestern States are to be preferred for grape-growing; and yet in referring to the yield of certain of his vineyards, he writes of the vines being "badly frosted in winter;" and on another page, states that: "all the fruit buds were killed above the snow line." Now I have never known the grape vine to be injured by frost in this section; and so far as climate is to be considered, I think the borders of the Chesapeake much safer and better for grape-growing than any part of the Mississippi Valley. The winters in the west are very capricious. Often there is a "spell" of warm

weather in January or February which starts the sap and causes the buds to swell. Then, in almost the twinkling of an eye, comes the terrible *Norther*. From that biting blast, or from storms of any kind, we seldom suffer here on the coast.

Mr. Husmann also advocates Dr. Gall's method of making wine, and devotes a considerable part of his book to its elucidation. There may have been a time in this country,—as there was in Germany, when Gall invented his process—when the supply of wine did not equal the demand; and the Gallized wine was certainly the best substitute for the genuine article. But Gall and his disciples can never convince me that wine made in that way is as good as the true juice. It may, as they contend, have the same proportion of vinegar, acid, water, &c., but dame nature elaborated the one in the vineyard, and under the genial influence of our bright summer and autumnal skies—while man mixed the other in his dark cellar and in a few brief minutes.

However, the wine made by Gall's process is infinitely preferable to the cheap imported wines and the American imitations of them. Wishing to know something of these artificial products, with which our native wines have to compete, I recently purchased several books, which, I was told, explained the process of manufacturing them, and which contained all the *arcana* of the trade.

You would be surprised and amused at the audacity and facility with which these wines are made. One of these authors begins thus: "*In presenting the following pages to the trade, his sole object is to benefit those who labor in the field*" (he should have said *cellar*) "*in which he has spent the best part of his life. The process by which to make cheap wines, described in these pages, is his discovery, and his alone; discovered during years of occupation as a wine manufacturer in Central Europe. Nine-tenths of the imported wines are made by processes similar to that disclosed in these pages. The question arises whether it is better to do our own work at first cost, or let others do it for us and pay them a profit of at least two hundred per cent. for their unnecessary labor.*"

The author then goes on to describe his *apparatus* for wine making; and the inquisitive reader may look in vain for a wine-press among the illustrations which his pages contain. He then gives all his *valuable* receipts and formulas, and he adds that the articles used may be obtained "at any respectable drug store." And of such are the wines so many people are drinking for Sherry, Port, Madeira and Claret.

Who does not say with Longfellow:

> "To the sewers and sinks
> With all such drinks,
> And after them tumble the mixer!
> For a poison malign
> Is such Borgia wine.
> Or at best the Devil's Elixir."

Respectfully yours, L. GIDDINGS.

Severn Vineyard,
near Annapolis, Md., Nov. 13th, 1876.

[The wines have been received and tried. Their purity and natural flavor are enough to commend them, while the low price at which they are offered by ther producer, in his advertisement, ought to secure their wide use.—*Eds*]

Vineyards in Virginia.

Messrs. Editors American Farmer:

In accordance with my proposition of last month, I to-day send a report about grape-growing in this part of Virginia. In 1868 the first vineyard was planted in this neighborhood, and though many of the old citizens at the time shook their heads, calling it a foolish attempt and throwing away money, the pioneers stuck to it, others then followed, and to-day there are within three miles of Haymarket about 50 acres of grapevines under cultivation. Nearly all the older and most of the newer varieties can be found growing in one or the other of these vineyards, whose product has so far been generally shipped to the Northern markets, principally to New York, bringing fair returns and giving employment to quite a number of hands.

The varieties mostly cultivated are Concord, Ives, Catawba, Delaware, Norton's, Clinton, Martha and Gœthe. In smaller numbers: Hartford, Perkins, Wilder, Salem, Cynthiana, Herbemont, etc., and on trial not fruited yet, Elvira, Neosho, Herman, Eumelan, Croton, Cottage and Black Hawk.

Out of an imported assortment of European varieties a few did pretty well for several years, but they, too, afterwards failed, and now all of them have been discarded. Of the varieties mentioned, we can class as healthy and productive: Norton's, Cynthiana, Ives, Martha, Gœthe, Clinton and Perkins, and in my grounds, the Concord, though in some vineyards the latter has rotted badly the last two seasons.

Proved unreliable: Delaware, from dropping leaves, and ripening fruit badly; Salem, same trouble as with the last named; Catawba, from more or less rot; Wilder, from rot; Bulander, slow grower and not productive; Hartford, slow grower and inferior to Ives in every respect.

The newer varieties are growing finely, and some of them may prove valuable for our neighborhood. With special interest we are watching the Elvira, which at the West is pronounced to have proved the white wine grape so anxiously looked for. Till now the Catawba has yielded the most saleable white wine made in this country, (not speaking of California wines,) and those who are favored with a locality where it remains healthy, will find it still one of the most valuable varieties.

As before stated, most of the grapes from our section are marketed, and though some wines have been made by different parties, none went into it on a large scale except myself, who seeing that large quantities of native wines were being consumed in the cities, thought that with proper knowledge and attention to wine-making, we too ought to at least be able to compete with the cheaper grades of imported wines, and more so with the so extensively manufactured compounds called wine. Commencing in rather a small way I soon found it necessary to build a regular wine-cellar, with press room, etc. By judicious blending of our different kinds of wines, I aim to produce an article that somewhat resembles the lighter table wines of France and Germany. The so far very satisfactory sales are proof that I have succeeded to some extent and are quite encouraging for the future.

Hoping that other grape-growers will also let us know what they are doing and that gradually we may exchange ideas through your paper,

I remain yours truly, C. A. HEINEKEN.

Prince William Co., Va., Nov. 18th, 1876.

Growing Large Bunches of Grapes.

Mr. John Curror, of Eskbank, Delkeith, Scotland, gives the *Garden* the following account of his mode of growing a bunch of grapes, weighing 26 pounds, lately shown at an exhibition in Edinburgh:

The vinery in which the large bunch of Raisin de Calabre grew that I staged at the international fruit and flower show at Edinburgh is a small lean-to house with a southern aspect. It measures 20 feet in length by 14 in breadth, and 11 feet in height at the back, and is heated by four rows of 4-inch hot-water pipes. The vines were planted in 1868, and produced four bunches each, the third year after planting. They are planted 3 feet apart in the inside of the house, with an outside border 13 feet wide and 4 feet deep, the soil of the border being composed of one-half yellowish clayey loam and one-half light gravelly soil strongly impregnated with iron. With this soil are mixed a few half-inch bones and a small quantity of manure. The border is top-dressed every year, inside and out, with 3 inches of cow or horse manure, and gets no protection from rain during winter. There are five vines in the house besides the Raisin de Calabre, viz., two Black Alicantes, one Lady Downes, one Bowood Muscat, and one Mrs. Pince, all of which carry bunches about the average size. The Raisin de Calabre which bore the 26 lbs. bunch produced three other clusters, one of which weighed 6 lbs., another 10 lbs., and one that still hangs on the vine is calculated to weigh about 18 lbs. This gives just 60 lbs. of grapes for one rod about 14 feet long. The vines are usually started about the 15th of February, when the house is shut up for two weeks without fire-heat. The third week they are assisted by a little fire-heat, and are also syringed several times each day until they break into leaf, after which the syringe is never used. I leave from 2 to 3 inches of air on all night, both at back and front, according to the state of the weather, and give very little fire-heat, except when the vines are in bloom, until the grapes begin to color. The inside border gets a thorough soaking with water three times a year—at starting with clean water, again after the berries have set, and, finally, just before they begin to color with guano-water. Under this treatment the leaves grow large and leathery, which, with well-ripened wood, I consider to be the secret of getting large bunches of grapes of good quality.

At the fair held at Meridian, Miss., lately, one grange displayed seventy-odd varieties of garden seeds and a great many varieties of field peas, together with beans, millet, sorghum, sugar cane, corn, potatoes, rye, oats, chufas, etc.

If each of our present subscribers will send us one new name for our lists for '77, we will do our part to make the Farmer doubly useful to each.

Chesnut Hill Views—No. 2.

Caladiums, Callas and Coleus.

Messrs. Editors American Farmer:

The November number of the *Farmer* came to hand to-day with its usual interesting array. I had prepared a few pages of manuscript for this number, but the urgent pressure of other business prevented my getting the article ready for you. In lieu thereof allow me to furnish for the December number some ideas suggested by the number for November. I am pleased to see that my last article had something to do with bringing out another instructive article from N. F. F. I perfectly agree with him that the restriction in exhibiting Caladiums with but one plant in a pot is fatal to the proper showing of these plants, if by that restriction we understand that there is but one *eye* to be allowed to a pot; but I think the meaning was that a single tuber must be placed in each pot. There are many varieties that will fill a pot handsomely with a single large tuber. I think, however, that the restriction is wrong and should be struck off. In the matter of blooming Callas I think N. F. F. could attain his object of having these flowers constantly, better by drying off his plants in batches at different periods. Did N. F. F. ever keep an account of the number of blooms cut from a Calla kept growing for twelve months, and one that had had a rest during part of the time? I think the rested tuber will cut the most.

In using Coleus for carpet bedding our plan is to set small plants June 1st, at not more than six inches apart and keep them rigidly nipped and sheared to a uniform height. We have some ideas of our own in regard to sub-tropical bedding which we hope to present to your readers before another bedding season arrives, but just now my attention is attracted to the nquiry of Mr. Brackenridge for a cure for

Verbena Rust.

Now I am satisfied from my own experience, that there is no need of having any rust to cure if the plants are properly grown. In years gone by we have been plagued with Verbena rust as badly as any one, but for a number of years past it would puzzle any one to find a rusty plant in our collection. We last season grew about 20,000 Verbenas and do not recollect seeing any symptoms of the disease. So as prevention is better than cure, I will state my

Method of Growing Verbenas.

We will start May 1st, with a healthy stock of late-struck plants turned out of thumb-pots and with but an inch or two of good healthy top. These will grow off and make the ground over by the time the tall drawn and pot-bound plants (which we are compelled to raise for market sales) have concluded to make any fresh growth at all. The plants are kept clean during the summer and about the last of August are well shortened in and the whole soil between them covered with a compost of one-half rotted sods and half old cow-dung. By September 15th, the plants will be full of strong, succulent shoots.

These we commence to propagate, and this we consider the main point in growing Verbenas without rust: *Have a healthy stock propagated and growing in pots before the frost has touched a plant.* We have seen two sets of plants, the one struck in September and the other late in October from the same bed, but after it had been exposed to frost, the first were entirely free from rust; the second in the same house and under the same treatment were thrown away by Christmas. In propagating Verbenas, in September, it is necessary to shade heavily overhead, but give as great a circulation of air as possible to prevent damping off. Having the plants struck, pot them into two-inch pots and as soon as the roots appear at the bottom, shift into threes and keep in a cool house. These stock plants can be kept in pots or planted out on the benches, which will give more growth for cuttings. This brings me to another great and common error in Verbena growing. I mean the practice of wintering them in too high a temperature. The house after firing is commenced should never be run up over 45° at night, and if it gets as low as 35° it does not matter, but the first figures are best. No matter how warm the house gets in day-time by sun heat. We ventilate in winter very little, as we find that winter ventilation is very apt to cause mildew. We fumigate our Verbenas with tobacco stems twice a week lightly and on two successive nights. All the green flies which were only sickened the first night will be killed the second, and two light fumigations injure the plants less than one heavy one.

Our whole system of Verbena culture, then, is embraced in the following leading ideas: 1st. Plant out April-struck plants. 2d. Encourage a strong growth late in summer. 3d. Propagate your stock before frost. 4th. Keep a low night temperature in winter. 5th. Fumigate lightly but frequently, and dust a little sulphur about every ten days as a mildew preventive.

You, Mr. Editor, were in company with Mr. Brackenridge at our place in Chestertown and may remember that he expressed surprise at the area we devoted to bedding Verbenas in a place where there could be but little demand for the bloom. This is another part of our Verbena growing. Aside from a demand in our business for Verbena seed from choice flowers, we usually endeavor to save a quantity of seed for our own sowing. With a few notable exceptions, Verbenas that have been long propagated from cuttings lose their vital stamina, so that it is hard to get a good strong growth for cuttings. We find it best to grow a stock of seedlings from which to select varieties for propagating, and drop such old ones as seem to be getting weak. Verbena seed saved from none but the best flowers will always grow plants worth bedding out, and a number that will be in advance of older sorts in some respects. But I am occupying too much of your space. The Verbena is one of my hobbies, and as I have been very successful in growing them healthful after years of battle with rust, I hope the result of my experience may not be unacceptable to your readers.

W. F. MASSEY.

Chesnut Hill, near Waverly, Md., Nov. 2d, 1876.

Growing Hyacinths in the House.

It is not yet too late to start Hyacinths for blooming in the house. Vick, than whom there is no higher authority, says:

A very small pot will answer for the Hyacinth. Some prefer to plant three or four in a large pot, and this will make a very pretty ornament. Cover only the lower half of the bulbs with soil, press them down until they are nearly covered, then water until the soil is moistened thoroughly, and set the pots in a cool, dark cellar. The roots will there form, with but little growth of top. Here they may remain for several weeks, and a pot or two at a time can be taken into a warm, light-room, for flowering, a week or ten days apart, and a succession of flowers obtained during most of the winter. When Hyacinths are planted in the garden, and well-covered, the roots get a good start in the fall and winter; and it is very important in flowering them in the house that a growth of roots should be first encouraged in the way recommended. When placed in glasses of water for flowering, the base of the bulb should not quite touch the water. Fill the glasses with well water, and as soon as the flower buds appear, sprinkle the plant frequently with rain water. Set them away for about two weeks in a cool, dark room, until roots are formed; then remove to a light, moderately warm room, and give plenty of light and air. Keep Hyacinths in the coolest room you have, anything above freezing will answer, and near the light. Flowers of the Hyacinth are often ruined by growing them in a very hot, dry, unventilated room. Our plan is to keep a stand containing our stock of Hyacinths in the parlor or hall, which is kept most of the time at a low temperature. From this room they are taken as needed—one or two of each color—to the sitting room, or the dining room, for special occasions, but always returned to their cool quarters for the night. By this method they not only flower well, but keep in bloom a long time. Change the water occasionally, if it becomes discolored. The choice named varieties grow best in glasses and pots, and single are more reliable than double sorts for house culture, while they are in every respect as desirable. Some of the double sorts do well in the house, and when the selection is left to me I will try to please.

When in flower, says the same, the tall Hyacinths need some support for the flower stem, and various contrivances of wire, &c., have been devised, but we have seen nothing so simple and effective as we show in the engraving. It is made of hard wood and fastened to the neck of the glass by a string. Any one, in a few minutes, with a sharp knife, can make this support. A brass or other wire can also be attached to the glass very readily.

Cold Pits.

The *Gardener's Monthly* says: Those who have no greenhouse, and yet are desirous of preserving many half-hardy plants through the winter, employ *cold pits*. We give the following directions for making them:

Choose the dryest situation in the garden, and sink about five feet in depth. It is important that no water can be retained at the bottom. The pit may be of any length required, and about five feet wide, so as to accommodate six feet sash. The inside of the pit may be built up of boards, or, if something more durable and substantial is required, brick or stone. The body of the frame may be built up a few feet above the level of the surrounding soil, and the earth which comes from the pit be employed in banking up to the upper level of the frame. Shelving should be made for the inside so as to extend from the base of the front nearly to the top of the back, on which to place the plants in pots. In the space which will then be under the staging, hard-wooded and deciduous plants, as lemon verbenas, fuchsias, &c., may be safely stored, while the more succulent kinds are shelved overhead. The plants to be preserved in such a pit should be potted early, and be well established and healthy before being pitted; much of success depends on this. The less water they can be made to live on without withering through the winter, the better will they keep. Straw mats must be employed to cover the glass when freezing time commences, and, when the thermometer is likely to fall below 20 degrees. straw or litter should be thrown over. Board shutters are also excellent, as they keep the snow out from the straw and litter, which makes the mats very awkward to uncover when we would like to give air. Very little light or air will be required through the winter when the plants are not growing. If a good fall of snow covers the pit, it may lie on undisturbed for two weeks or more without injury. When a warm dry day offers, the sashes may be raised if convenient, to dry up the damp. Many kinds of border plants can be kept over winter in this way with little trouble.

Layering Roses.

It has been stated that the Chinese method of layering roses is sometimes more successful than ours. Late in the summer they select a vigorous shoot of the same year's growth and tongue it in the usual way; they put in a small pebble to keep the slit open, and bind a handful of fresh roses around the tongue, keeping it constantly dampened. In about six weeks it will have struck roots, and can be planted without disturbing the mossy covering. Many of the garden roses can be increased by suckers from the roots, which can be severed with a sharp spade in the autumn and new bushes formed of them. Budding roses is a simple process, by which amateur cultivators often increase their stock. A sharp penknife can do duty for a budding knife, and the handle of a tooth brush, if ground down smoothly, will answer for a spud to aid in lifting the bark. From the last of June to the last of August is the best time for this process, as the bark can then be more easily raised from the wood. Take a smooth stalk and make a horizontal cut across the bark, through to the wood, but not into it. From the centre of this cross-cut make another straight cut down the stem, an inch or more in length. Those two cuts should resemble a T. Slice off the bud you desire to propagate with one cut of the penknife, cutting it close to the bark. Now, with the edge of the spud turn back the stalk on each side of the straight cut and insert the bud on the wood of the little branch to be crossed. With a bit of soft yarn bind down the bark, leaving the point of the bud exposed. A handful of dampened moss must then be bound round the stem, taking care to leave the tiny point of the bud exposed to the air. In six weeks the wrappings can be removed, but all other shoots must be kept from growing on the budded branch. By this means a rosebush can be made to bear half a dozen different colored roses.—*Canada Farmer.*

A Vase of Simple Flowers.

A few days since I arranged a vase of flowers for the breakfast table which was much admired by several friends; indeed, so much so, that I am induced to give a description of it, as the effect was produced by the arranging of the flowers, not the quality, for they were only common garden varieties. The shape of the vase was a flat tazza, out of the centre of which rose a tall glass trumpet, and from the base of the trumpet sprang three curved branches; round the edge of the trumpet were fronds of the Lady Fern, and in the tazza were grouped white Water Lilies, Scarlet Geranium, leaves of Dells Beet, Ribbon Grass, hardy Ferns, and Wild Grass. In the three curved branches were yellow Roses and Delphiniums, the latter a very pale shade of blue. In the trumpet was a yellow Rose, some scarlet Geraniums, white Honeysuckle and blue Lobelia intermixed; with these were wild grasses and a few blades of Ribbon Grass; round the mouth of the trumpet drooped a few fronds of the Lady Fern, while twined amongst the glass branches were a few young shoots of the variegated Periwinkle. As will be observed on reading the above, the flowers themselves are only common kinds, such as are to be found in almost any garden; but if a little trouble be taken in the arranging of them, few I think will feel disappointed with the effect produced. Other effective arrangements could be made in different colors with the same class of flowers, say for instance the light blue Delphiniums used in place of the Scarlet Geraniums; pink Christine Geraniums in place of the Delphiniums in the curved branches, and the same in the trumpet; again mauve-colored Clematises might be used in the tazza, and Violas in the curved branches and trumpet; by the change of these few flowers quite different stands could be produced, though the principal flowers and foliage would remain the same all through. A great mistake often made is, that because the flowers at hand may not be perhaps of very choice kinds they are not worth arranging, but most effective decorations can be made with very simple materials; indeed, nothing is more charming than wild flowers if well arranged.—*Miss A. Hassard, in Gardener's Record.*

Floriculture, &c.—December, 1876.

By W. D. BRACKENRIDGE, Florist and Nurseryman, Govanstown, Baltimore county, Md.

Pleasure Grounds.

Conjectures on horticultural pursuits and practices may in some measure appear admissible, in so far as they may tend to reveal to the mind new systems of treatment; but to the novice or uninitiated, theories or vague surmises tend only to mislead: and here we would remind our readers, that much that is written in these days on horticulture may, with safety, be viewed as only a rehash or echo of what was known and promulgated by standard authorities half a century ago; and we are somewhat inclined to adopt the old adage, that "there is no new thing under the sun," and yet we cling to that other old saying "that a good tale is none the worse to be twice told." And this much we have known of old, that trees form roots in winter; and to encourage such as were planted the past fall, we would cover the surface of the ground around the stem, with a layer of manure, moss or leaves, thus preventing frosts from penetrating deep, thereby keeping up a uniform temperature. An impression is entertained by many that deciduous trees can only be transplanted during two seasons of the year, viz: spring and fall; now this is a great mistake, for success in winter planting depends entirely on the condition of the ground, which must be free from frost, and just dry enough to part freely when turned over with the spade. We have planted trees in all months running from September on to June, and the ultimate result when performed in any month was pretty much the same—that is, when the condition of the ground was as stated above. European nurserymen transplant in favorable weather, all winter, and we have known some of our own tree growers, as far north as New York, do the same; south of Baltimore the mildness of the climate will offer many more favorable opportunities for this kind of work than with us.

We are no advocates of the selection of large trees for decorating pleasure grounds, or planting of avenues; over fifty years practice, and we may add a few more years observation, has convinced us that large-tree planting is a foolish expenditure of money, and loss of time; and so convinced are we of what is here asserted, that we will venture against any one, to plant trees six feet high, and they to take such as twelve to sixteen feet high, that at the end of six years our trees will be as far ahead of theirs as theirs were ahead of ours when we started; and, moreover, our young trees will ultimately make handsomer specimens at less than quarter of the cost.

In planting trees where the ground is poor, we have always found it of great service to have at hand a good supply of composted earth; this is readily procured along headlands, where the farmer often, and very heedlessly, is in the habit of turning his furrows to the fence; should this be in the state of grassy sod, so much the better; lay it up in a pile, and when turning it over, mix in decayed leaves, woods-earth, and to give strength to the whole mass, add about one part of manure to six parts of the others; by using one or two barrow loads of this compost in planting each tree, it will be found to act on them like a charm.

All gardeners and farmers, no matter how small the domain under their charge may be, should have, in some damp place, a patch of basket willows—sometimes called Osiers; these will be found useful in making fruit and vegetable baskets, as well as tieing up to stakes, grape vines, raspberries, &c., &c. Of these there are many sorts, and in order to have them flexible, they should be cut close down to the stool every year. The French and English gardeners use a great many of them in their horticultural operations, and so ought we, but then very few know how to handle them to advantage.

Plants in cold frames should receive a liberal supply of air in mild weather, while water ought to be given rather sparingly; using as covers to the glass at night either straw mats or wooden shutters. Where the box or frame stands on the surface, a bank of earth should be laid against it up to the top, all round; but if earth is not to be had, stable manure or leaves will answer the purpose. But watch should be carefully kept, that mice and rats do not harbor inside, as they would soon make havoc among the plants; but should they get in, give them a little arsenic on cold fried fish, one taste of which will be enough for them.

Greenhouse.

We well remember the time when this department was represented by bevies of New Holland and Cape of Good Hope, such as Epacris, Gompholobium, Boronias, Chorozemias, Hoveas, Pultenias, Banksias, Proteas, Metrosideros, and their like; but tastes in these matters are as changeable as the fashions of the day are in dress; and we have adopted the more weedy, less valuable and easy managed things as Geraniums, Begonias, Achyranthes, Coleus, Centaureas, &c., &c., all of which can be grown by the most ordinary florists; but we are pleased to see that the Camellia and Azalea still remain in favor, and that the Rose is receiving more than usual attention, and deservedly so, as she well merits to be dubb'd "Queen of the garden." We do not blame people for discarding one thing and taking hold of another, but we do lament when we reflect on the many superb plants that have disappeared from our collections; as a reason for which—or rather one of two causes may be assigned for this—first, expence of keeping them, or else their cultivation may often prove a sort of abortion under bad practice!

As desirable for a conservatory, and greatly to be admired everywhere, are all the kinds of Palms and numerous varieties of the Fern tribe. It is now forty years since we were laughed at, when trying to raise plants of the latter from spores. Now millions are raised in that way. In fact, it is the only one by which many kinds can be multiplied. The spores should be sown on the surface of very fine earth and kept in a close, warm, moist place, until such times as they are large enough to handle, when they should be set out singly in small pots. As a general thing, ferns in an adult state, love shade and humidity, although we have plenty of them growing in places very much exposed to the sun; about 2,400 species are known to botanists, but we presume that of that number not more than 400 sorts are under cultivation in the United States.

Gunpowder Farmers' Club.

Messrs. Editors American Farmer:

The Gunpowder Agricultural Club met Nov. 4th, at the residence of Jno. D. Matthews. S. M. Price presided. The Club on the inspection tour examined a young clover set, barn, stables, stock, harness, &c. A Champion wheat drill was run back and forth on the barn floor to show its gearing and feed connections. A corn field, on which there was a very thrifty stand of wheat, was then visited. This had been drilled between the shock rows with "Whitelock" at the rate of 200 lbs. per acre. The method of drilling corn ground on which the corn has been cut up, finds decided favor with the members of the Club.

During the half hour set apart for questions and answers, Jno. D. Matthews asked Dickinson Gorsuch what he would do with rag weed, foxtail, etc., in new sets? (*a*) The best thing is to put on the mowing machine, but it is now too late, for that should be done earlier. (*q*) As that has not been done, what would you do now? (*a*) Roll in the spring. I. M. Price said he had rolled such excessive growth in the spring and horse-raked it the opposite way from which it was rolled, and found the result satisfactory. Dickinson Gorsuch asked S. M. Price and N. R. Miles, how their apples, barrelled last season direct from the trees, had kept? S. M. Price replied that his had kept well and lasted late up into the spring. N. R. Miles, and our host, had had the same experience. N. R. Miles said that where his stood in the orchard not headed up the apples had rotted on top. The foreman stated this could be remedied by covering with something textile. B. McL. Hardisty asked what produces "hollow tail," without receiving any categorical or satisfactory answer.

A committee that had been appointed at a previous meeting to devise some measure of relief from the annoyances and losses farmers who frequent the Eastern hay scales in Baltimore are subject to, was called on to report. This led to a general discussion of the whole subject. As remedies, the employment of a Deitrick's Perpetual Press was suggested, or, as more effectual but less attainable, such a hay market as exists in Philadelphia, owned and controlled by farmers. Two of the members present had visited this market on a recent trip to the centennial and spoke in very high terms of its comforts and conveniences and the protection afforded against such sharks as haunt the scales in Baltimore.

The question for the occasion, an annual one, and set for this meeting, runs as follows: Have the members in the year past gained any new or additional experience in the accumulation or application of barn-yard and stable manure?

B. McL. Hardisty.—Last winter he had kept a man occupied at leisure times gathering odds and ends about the farm, and by this means accumulated sufficient to manure seven acres, which was so much extra of his usual supply. It constituted a mass of good ammoniacal manure. Another valuable source of supply is a sink into which house slops, dish and waste water, etc., are conducted through drain pipes a considerable distance. The sink is about 10 feet deep, 8 long and 5 wide. He fell upon this plan merely as an expedient to get rid of the house slops, but he has since found it an acceptable accessory to his principal stock of manure. Last year he got out of it 37 loads. As absorbents he filled it with loam, refuse litter and other vegetable matter. When the drain becomes filthy or offensive, he uses copperas water as a purifier and disinfectant. The contents of this sink gave him a No. 1 article.

Joseph M. Gorsuch.—It is very important for a farmer to save his manure carefully and to economise in its use. One who does not do this ought not to be called a farmer. In answer to the query which the question puts, he has learned nothing during the past year. He finds that manure is absolutely essential in obtaining a grass set. The old method of farming was best for a set of grass—under it land only in half life would give a good set of grass even if it did not grow strong.

A. C. Scott—He is satisfied that he gets more benefit from putting his manure out directly from the stables, than in any other way. He likes the plan of applying manure on top for corn after plowing. He satisfied himself of the advantage of this plan last year. Both corn and wheat following, were better than where the manure had been plowed down.

Dickinson Gorsuch—He finds his plan of piling instead of scattering works well. Last year his base was too small; he was forced to roll his manure over the side after the pile rose to a considerable height. Where so rolled over there was firing. This year he is starting larger at the base and is dirting more. By gradually drawing the pile in it sheds the rain and comparatively little waste in the way of drainage or leaching ensues. Joseph Harris pursues this plan. He did not compost so much this year on account of the smaller area to be covered. What he composted broke down much easier and handled much better than the rest. Hauling out and composting he thinks pays for the extra labor it requires. The manure, besides handling better, goes over more ground and gives more satisfactory results. Putting out directly from the stable saves labor, but cow manure requires fermentation; without it the necessary assimilation is not produced. Piling causes a better commingling of dung and straw. He applies his manures to grain land; it insures a set of grass; his sets have been fair since he adopted this plan. The only manure that he applies directly from the stable is horse-stable manure. It should always be applied in that way; has given him results equal to the best commercial fertilizers.

Jno. D. Matthews has no reason to deviate from the course he has been pursuing. He hauls directly on pasture land exclusively; never suffers an accumulation of stable manure. It goes out regardless of the season. That made in the yard he piles and lets rot. He uses plaster very freely in the stable, both before cleaning out and whilst the operation is going on.

N. R. Miles—He has nothing new to offer; saves his manure for wheat; gets more benefit from it by applying for wheat; gives him better grass sets; one gets a good crop of both wheat and grass. He gets more benefit from horse-stable manure by applying direct from the stable.

Is well pleased with Mr. Hardesty's plan of utilizing the slops from the house.

Ed. H. Matthews—He thinks they have received more benefit from their manure the last two years than ever before since he can remember. During that time they have been applying directly from the stable on sod and plowing down; goes over more land. Where applied in this way last year they gathered 18 barrels of corn per acre. Adjoining, where no manure was applied, 10.

I. M. Price—He is endeavoring to make and sow all the manure he can. Making and sowing manure pays us better than any other branch of the farming profession.

W. W. Matthews—He is more convinced than ever of the necessity of making and saving all the manure we can. It would pay to keep a man and cart to hunt up refuse matter about the farm the year round when the ground is open. He puts horse-stable manure out as it is made. Applies all to corn ground if in fit condition. What is not in fit condition he composts, using plenty of earth and plaster and about a peck of bone to wagon-load of compost. He doesn't often see anything of the bone; it goes entirely to pieces. Compost beds are about 10 feet wide, 6 feet high and 20 feet long. Thinks more bone might be used to advantage.

S. M. Price—He has learned something new here in the way of putting to valuable use the slops from the kitchen and house, and also in cleansing and purifying a till drain. They have had such a drain for years, but have failed to turn what passes through it to profitable account.—Where it issues they can raise nothing but weeds. So far as putting out manure is concerned, they adhere to their old plan. All has been put out on sod for corn to be grown the coming season. He has paid a great deal more attention to mixing leaves and rich earth with his yard manure, and in this way increased the same some 40 or 50 loads. He uses plenty of plaster in composting in the yard where he feeds his fodder. In building a hog-pen he has had considerable regard to saving manure. With hogs he uses leaves or straw as an absorbent.

Baltimore Co., Nov. 23, 1876. T. G.

The True Theory of Farming—No. 12.

Complete Manures.

Messrs. Editors American Farmer:

Much has been said about "Complete Manures,"—mixtures of all the constituents of soil-food for certain crops.

For a soil deficient alike in all, in a ratio with the wants of plants, there might be reason for their use. But this will hardly be found in any soil except it be wholly destitute of all. I take it that your readers, like myself, are trying to sustain fertile, and to advance partially exhausted soils.

If we miss the most economical means and persist in improvidence, inevitable exhaustion ensues. It is impracticable, and financially ruinous, to essay the accomplishment of these ends by "Complete Manures."

Even virgin soils are supplied by nature with different respective proportions of plant-food in reference to the growth of any crop. In respect to the demands of the different sorts of plants, some soils may be practically inexhaustible of one substance, and so feebly supplied with others as soon to be exhausted. The diversity is still greater in soils partially exhausted by tillage; some substances having almost entirely disappeared, while others, from orginal abundance, or constant supplies from causes inherent in the composition, or in the location or position of the soil, continue to abound. Indiscriminately to apply all, is to employ as much not required, as of what is at present essential.

No theory or practice is so certain to result in eventual exhaustion of soil as improvident importation of mixed manures in blind anticipation of general exhaustion, when only special substances are necessary, and the production of small crops, and consequent inability to import and apply manures when actually needed.

No manures made on the farm ought to be wasted. *They* should be applied to soils in any condition. But this is another and a different thing from purchasing costly "cure-all" preparations in anticipation of their necessity. It is said that wheat requires a great deal of certain substances that are usually deficient in old soils, and that these should be mixed together in the proportions appropriated by wheat crops, and used indiscriminately on all soils for wheat. There is no difference in principle, but only in degree, between this and the broader improvidence of a universal mixture for all crops and all soils.

It is thought that no two persons living or that have ever lived, were exactly alike. It is even less likely that any two soils on earth needing manures at all, contain the same substances respectively in the same proportion to the demands of wheat or any other crop.

If, then, it be improvident to purchase manures known to contain all the constituents of plant-food in general, or of any special crop, what is to be done? How shall we know what particular constituents of food we should appiy for general or for special crops? Certainly those only which are *at present* deficient in the soil. But how is this to be ascertained? A certain class of antiquated writers has answered for forty years—"analyze the soils." All I shall say at present about this exploded impractical theory is, the venture of an assertion that if the wealthiest farmer in America should listen to and practice such folly during life, at the end his finances would be exhausted and his children, at best, would inherit deteriorated soils without the means of replenishment.

On the other hand, by another class, we are taught to entirely ignore the existence or the proportions of different ingredients of plant food already in the soil. They analyze the *plants* instead of the *soil*, and present us with tabulated statements of the proportions of soil food contained in the plants, and tell us to apply these in those proportions to any and all soils. This leads to the plausible use of complete manures for special crops. The theory is good enough in water culture or in the chimera of an agricultural soil destitute of all plant food.

In water culture the experimenter begins with pure water for a soil. This soil is destitute of all constituents of plants except oxygen and hydrogen. It is therefore proper to dissolve in this soil the various substances of plant food in the proportions they exist in agricultural plants.

Here a glass vessel is the field; water, impregnated with plant food, the soil. This soil does not wash away nor escape from the glass inclosure, and there is no perceptible waste, unless it be true, as taught by the screamers against so-called "stimulating" fertilizers, that it is a waste and lamentable exhaustion to rapidly convert plant food into plants.

In this soil of water in a glass field we might have the anomaly, so much deprecated by croaking vampires, of all the plant food being "forced out of the soil into the plants in one season." Certainly the rains will wash none away, and what is not *wasted* in the plants will be saved in the *field*. But we are told to practice the same system in fields bounded by fences only, and washed by rain storms and floods. The ubiquitous tables embellish or help to fill up every essay, showing the results of analyses of the various crops,—what an ordinary crop from an acre of soil assimilates? And we are unblushingly told to apply those substances in the proportions and quantities found in the plants, and fertility will be preserved.

For example, the product of an acre of wheat, say 30 bushels of grain and its straw, appropriates about 14 lbs. lime, 10 lbs. magnesia, 29 lbs. phosphoric acid, 7 lbs. sulphuric acid, 36 lbs. potash, 140 lbs. silica, and 65 lbs. ammonia. And these are the quantities and proportions we are told to apply annually by the *plant*-analysis theory. Yet if they existed only in these quantities, evenly distributed in an acre of soil with all other plant food in the quantity used by the crop, not one head or grain of wheat could be produced on that acre of soil. I will not weary with elaboration. The plants would never find their daily allowance, and ten times as much, if it existed, would be washed away in the abortive attempts to produce a crop.

If it be improvident in agriculture to purchase manures known to possess all the constituents of plant food, what shall we resort to? If we are not to take the proportional constituents of plants as the measure of ingredients to compose manures, nor to analyze the soils to find what is lacking, and what present, where is to be found a better criterion? How shall we determine what substance or substances, and what respective quantities, should compose the fertilizers to be added to the soil?

In general the only substances that become scarce or "exhausted" in our soils are lime, magnesia, phosphoric acid, ammonia or nitrogen-producing substances, and potash. No matter in what form fertilizers are presented, they are valuable to the purchaser only as they contain these in a soluble condition,—not in the proportion they are used by the plants, but in a ratio with their disappearance from a soil once abounding in due proportions of all. Such a wheat crop, for instance, as I have described, contains 140 lbs. of silica and only 29 lbs. of phosphoric acid. Yet who would impart to his soil five lbs. of silica with every pound of phosphoric acid he applies, or ten pounds of magnesia with every 14 lbs. of lime? If a mixture of several manures are used to advantage the experiment fails to show which of its ingredients produced the beneficial results, when, perhaps, some were not needed at all.

The Only Economical and Decisive Solution

Of the question as to what is needed and in what quantity, is first to commence with the cheapest of the five substances already named—say lime. If it be from the rock it will contain magnesia, which is no objection, as it costs nothing in this form and is expensive in any other. Do not expend a large amount of money in liming the whole farm. But spread strips of *fine* lime—the older the better, so it is *fine*—across every field, disseminating it as perfectly as possible. If it does not respond in the *succeeding* crop, either the soil does not need lime and magnesia, or needing them, it also lacks one or more of the other three,—phosphoric acid, ammonia or potash. The absence of either is as fatal to a perfect crop as the absence of all. The next step then is to apply phosphatic matters on the same soil treated with the lime. If this does not respond satisfactorily in the *succeeding* crop, apply ammonia on the same soil in the cheapest form it can be had; or as it is a substance nearly always needed in worn soils, it might be applied with phosphatic matter as in the ammoniated "super-phosphates" of commerce.

If this does not respond in the succeeding crop, add potash to the same strips of soil. If a satisfactory result is not obtained in the succeeding crop, and the soil was properly drained, tilled, &c., make no further ado about it. Sell the soil, or give it away, and go elsewhere. If any of these are put on in a coarse or insoluble state, or not evenly distributed, no satisfactory result will ever be reached in respect to that substance so applied.

Next month I will try to give you an account of the extraordinary success of Mr. G. F. M. Walters, of Langley, Fairfax Co., Va., in the renovation of a worn-out farm.

It is an encouraging example of high scientific farming by intense practice and close observation of a strong agricultural mind.

Shenandoah Co., Va. L. H. McGINNIS.

Deficient Elements in Soil.

The following is taken from a recently-issued circular of the Connecticut Agricultural Experimental Station:

It is sufficiently well settled that nitrogen, phosphoric acid, potash, sulphuric acid, lime and magnesia, are the only ingredients of plant food which need to be supplied in fertilizers. The other materials, as iron, silica and chlorine, which plants remove from the soil, are, in so far as they are necessary for plant food, furnished in abundance by every ordinary soil.

Generally speaking, we may accept the opinion commonly held, that magnesia may sometimes be lacking, that sulphuric acid and lime are more, and nitrogen, phosphoric acid and potash, most apt to be deficient in our ordinary soils. In one soil, one, in another several or all of these may be wanting.

It was once thought that the chemical analysis of a soil would easily reveal its deficiencies in plant-food. But later experience has shown this is at best a costly and defective source of information. Different samples of soil from the same field may vary widely in composition, and what is a still greater difficulty, chemical tests which make known the presence of a given ingredient in the soil, do not show whether it is in such a form that the plant can use it. And there are many processes of vital importance to the sustenance of the plant, which are continually going on in the soil, but which the analysis does not reveal.

Most of our artificial manures are only special fertilizers. Guanos, phosphates, fish and bone manures and the like, contain more or less nitrogen, phosphoric acid and lime; the super-phosphates contain sulphuric acid also. With the exception of some to which the German potash salts have been added, very few of them contain any appreciable quantities of magnesia or potash. They supply part but not all the materials which soils may lack.

Many farmers find that guano, fish and other special fertilizers whose action is quick and stimulating, seem to leave their soil in a more exhausted condition than before they were applied. And the complaint is not uncommon that such fertilizers do not bring the same return as formerly.

May we not at least question whether the immediate effect of these special fertilizers has not been, in many cases, to aid the plant to use the more available stores of food in the soil, until these latter have become so far exhausted as no longer to respond to the stimulating action of the special manures?

If the above supposition be correct, it is clear that what such exhausted soils need, is some thing to supply, not only the nitrogen and phosphoric acid of the guano or fish, or bone, or superphosphates, or other special fertilizers, but also the potash and other minerals that these latter do not furnish.

Ashes are, for many soils, a standard fertilizer. Places where a tree or brush-heap has been burned often show the effects of the manuring for years. It is a trite saying, that "the land never forgets ashes." Ashes supply directly all the soil ingredients of plant-food except nitrogen. Their indirect action is also, very likely, not unimportant in rendering other materials in the soil available. Instead of wearing out soils, they strengthen them. May not this difference be due, in part at least, to the fact that they furnish the other ingredients of plant-food that the guano and fish lack?

Stable manure furnishes all the ingredients of plant-food. It is a complete fertilizer. Farmers do not complain that it helps to exhaust their land.

There are soils which, by application of nitrogen and phosphoric acid, in the form of guano, bone or nitrogenous super-phosphates, may be made to bear good crops year after year. They supply of themselves the other materials needed. They have abundant stores of magnesia and potash, and so on, and by weathering, tillage, and the action of the fertilizing materials added, these are worked over from unavailable forms into those which the plant can use.

But such is not always the case. Among the exhausted and worn-out soils of New England there are a great many which lack more than nitrogen, phosphoric acid, sulphuric acid and lime.

This is very strikingly illustrated in the elaborate experiments of Prof. F. H. Storer, at the Bussey Institution at Jamaica Plain, Mass. These were made upon what Prof. Storer calls "a very good representative of the light, leachy soils that overlie gravelly drift in New England." In these experiments, which continued through a series of years, different crops were raised with different manures, the same crop being grown with the same manure, on the same plot, year after year. Those raised with fertilizers containing nitrogen and phosphoric acid only, showed very little good effect from the manuring, while the potash compounds brought the most satisfactory returns. As Prof. Storer says, the "crying want" of this land was for potash. There are doubtless many such soils in Connecticut.

Some time ago, an intelligent farmer asked the writer which were the better fertilizers—phosphates or potash salts? The reply was, I knew no better one, "potash salts where potash is needed, phosphates where phosphoric acid is needed, and nitrogenous manures where nitrogen is needed. But if you do not know what your soil lacks, and want to make sure of a crop, and enrich your land at the same time, use your nitrogenous super-phosphates and German potash salts together. The former will furnish nitrogen, phosphoric acid, sulphuric acid and lime; the latter, potash and magnesia. Thus you will have a fertilizer with all that the plant needs—a complete manure. At the same time, it is well to remember that you may feed your crops, not only directly by giving them these ingredients in guanos, phosphates, potash salts, and so on, but indirectly by rendering stores of plant-food, present in the soil or atmosphere, available through tillage and the use of cheaper fertilizers. A little lime or plaster may sometimes be thus more valuable than an amount of phosphates or potash salts that would cost several times as much.

Crops and Prospects in Georgia.

In the Report for October of the State Department of Agriculture, issued November 18, the commissioner says: The yield of *corn* is reported at 122 as compared with last year. As there was 10 per cent. *more* corn planted this year than last, it is just to conclude that the quantity made is 34 per cent. greater. The cost this year is estimated at 43 cents, compared with 58 cents last year.

Of *cotton* reports indicate a yield of 97 as compared with 1875, the cost of production being 9.8 against 11 cents last year. This difference is attributed to a general reduction in wages of labor, together with greater economy in the *consumption of supplies*. Much less corn and bacon have been purchased. The commissioner looks to see the cost reduced next year, with average seasons, to 8 cents.

Sorghum Syrup grows in importance as a farm product, as farmers are wisely recovering from

the prejudices conceived against it during the war; and it is found profitable.

Chufas, or Earth Almonds, as a crop for fattening hogs in the field, are receiving more attention than ever before. Those who have tried them are unanimous in the opinion, that for the purpose named they have no superior. They are easily raised, very prolific, very fattening, and are not difficult to eradicate from the soil. From actual reports made to this Department, it appears that forty to fifty bushels may be produced on one acre of very ordinary land, at a cost not exceeding 15 cents per bushel, if left for stock to gather. If dug for seed they will cost 75 cents to $1 00 per bushel.

Wheat.—There is a reported increase in the probable acreage that will be sown of 8 per cent. Very little of that sown is *up*. The Commissioner is making earnest efforts to discover a more reliable variety, and has distributed this season, to all parts of the State, several bushels in quart and gallon packages, of a variety called the "*Dallas*," grown in this State and represented to be very hardy, and comparatively rust-proof. No reasonable effort will be spared to procure and distribute samples of varieties of foreign wheats which promise to supply the *great desideratum*—a *rust-proof wheat*.

Oats.—The present and prospective acreage is 11 per cent. greater than last year. There is a growing conviction that, in the near future, the oat is to become the great *provender crop* of the South.

Farmers are again urged to sow with unsparing hand. They must be sown until 1st December.

The Commissioner gives the following sound advice: And now that the harvest is about ended and the year is drawing to a close, it is well that we calmly review the year's operations.

Let each farmer closely examine and criticise his plans and policy of the year—in the light of the results attained—and while memory is clear, let him begin to mark out a wise course for next year. Let him settle up his debts in full if possible, wind up the year's work, and begin on the new year *before Christmas*.

Let him map out his year's programme, mark the dangerous places, *avoid* them, hew out new and shorter roads, steer wide of the *pit-fall* of DEBT, correct his blind wanderings of the past.

In this connection the Commissioner advises farmers to adopt some simple system of keeping accounts with the farm. How can a just and true balance be struck if there be kept no accounts of the *incomes* and *outgoes* of the farm?

How would a merchant, doing a large business, selling on credit, come out at the end of the year if he kept no books? How could he succeed without an invoice showing the cost price of his wares? The farmer supplies his fields of corn, cotton, oats, and wheat, with horse power, manual labor, fertilizers, seeds, use of wagons and implements, machinery, interest on investments, wear and tear, and last, though not least, with brain labor. He should price all these supplies at cost and *charge them* up regularly against each field. When the harvest opens, give credit for every item of produce at the market price, and then strike a balance sheet—see *which side the balance is on*. In this way alone may the farmer know what he is doing—whether he is making cotton at a cost of 15 cents and selling it for 9, or corn at 75 when his little oat crop cost only 25—in a word, he may know whether he is *making* or *breaking*—and if making he will know on what crop—by what plan. He will know where to cut down expenses, where to invest more labor, which crop to increase, which to diminish or leave off. He will perhaps see that it will not do to buy bacon at 17 cents when it can be produced at a cost of 10 or 12.

In conclusion, notwithstanding the low price at which the cotton crop is selling, farmers are paying up more promptly than for several years past; there is a cheerful spirit prevailing, less disposition to leave the farm, less of the feverish desire to "Go West," and an evident inclination on the part of men now engaged in other business to embark in farming. As a business, it has reached the ebb, confidence is being restored, and there are indications of a returning tide of prosperity and progress.

Patrons of Husbandry.

Meeting of the National Grange.

The National Grange met at Chicago on the 15th ult., representatives from twenty-seven States being present,—Master Jno. T. Jones, of Arkansas, presiding. That officer delivered on the first day of the session his annual address, for which we have not room in full. Congratulating the Grange on the new force which, from year to year, the organization received from the increase of its membership, power and good works, and on the persistence with which the original members of the order and the National Grange continued active in the field, he proceeded to discuss practical questions connected with the progress of work of the order.

Several changes in the constitution were recommended. Prominent among these is the necessity of so amending section two of the constitution, under the head of organization, as to preserve that unity and symmetry in our grange system which had characterized it before the adoption of this section, and which is so essential to its harmonious and efficient working. In providing for the establishment of *Pomona granges* "under such regulations as may be established by State granges," instead of placing them upon the same footing as other granges in their organization and government, we have not only marred the harmony and beauty of our system, but greatly impaired the efficiency of this valuable link in our chain of granges.

In reference to the matter of co-operative societies, and the rules adopted at the last session with a view to furthering the enterprise, the Master said:

"As regards Grange growth in England, the minds of English farmers are now, for the first time, fully prepared to accept such a plan of organized co-operation as the Grange offers them. They are, however, almost totally ignorant of

the purpose of the Grange, its great and good work, and its real adaptation to their pressing wants. But under the efficient guidance of our present deputy there, who was greatly aided by the editor of the *London Farmer*, the seed sown has been fostered, and they are being gradually but surely prepared to adopt our system, though it may be in a slightly modified form. Mr. Sheldon says to me in a late letter "The Order will take root in time in this country; it cannot fail to do so." If the Grange ever flourishes in Great Britain it must be among the tenant farmers and small land-owners, who are distinctly separated socially and in their material interests from the landlords on one hand, and the agricultural laborers on the other. The latter have been combined in unions by Mr. Joseph Arch and his co-workers. Herr Prenzel, a farmer near Berlin, Prussia, writes me that the facts are very much the same among German farmers.

Now, as regards co-operation. First, I may say that the general subjects, principles, and sympathies of our Patrons of Husbandry and the European co-operators are identical, and hence we are natural allies. Second, that there is a general agreement among the leaders of co-operation in England to bring about direct trade between our Grange business associations and their co-operative societies. Third, that a great majority of them favor the general principles involved in the Mississippi Valley Trade Company, because its principles are based on the plans of co-operation so thoroughly matured among them. Fourth, that enough of them and their societies have already become enlisted in it to combine in its favor the main co-operative strength of the United Kingdom. Fifth, that they rely chiefly on the strength and sympathies of our Order to make such direct trade a success. Sixth, that unless the Mississippi Valley Trade Company, as they now agree to, modify it into a more truly liberal, comprehensive, unsectional, and truly national form of an Anglo-American Co-operative Company, and it is successfully placed on a working basis, and that soon, we have no good reason to expect for many years to come the establishment of the direct trade mutually desired between America and English co-operatives.

"It may be thought by some who take a solely sentimental view of our organization, that I am giving an undue prominence to its material objects. If so, I cannot think they have studied the deep philosophy, pure morality, lofty virtue, and genuine religion, that underlies co-operative life. Rightly understood it is the practical realization of Christian ethics. The silent virtues of temperance, forethought, just dealing, and fellowship in work, will do more to correct the moral disorders which darken our land, and have tainted our government, as well as trade and commerce, than all the penal statutes that have been or can be devised. The material, moral, social and intellectual influences are in near connection with each other. The most material things have great influence on mental subjects, a sentiment that ages ago the poet Homer gave vent to, in saying that when man becomes a slave he loses half his virtue."

The excellent manner of conducting these co-operative stores in England was referred to and compared with the defective system here. In this connection Master Jones said:

"As a part of the system and plan of the organization and government of the co-operative societies of Great Britain, which it was our purpose to adopt, these rules, with some slight changes, will be most valuable, but taken alone they are a disjointed link in a chain, the perfection of which, by our British friends, has been the work of their educated, thinking, practical men for the last 35 years. The fraction which we have given our order has been utilized to an extent which we can only conjecture. Hundreds, and, it may be, thousands of co-operative stores have been established in the various States and Territories of the Union, with various amounts of share capital, and perhaps as various in other features, and in their fortunes. They are without a head or connecting link, "like so many islands in the sea, without even a boat plying from one to the other"—without that principle of unity which is the life of co-operation and the guiding-star of humanity."

Strong grounds were taken in the address in favor of the formation of an Anglo American Co operative Association.

Mr. J. W. A. Wright, Special Deputy and Commissioner to England, made a report of his labors in that country in the matter of this international co-operative scheme.

Mr. Wright stated that his first work was to familiarize the English rural population with the idea of the Grange. This, and the negotiations entered into by the Commissioner with the various co-operative societies in Great Britain, formed a very interesting chapter of the report. An effort was made, and not unsuccessfully, to establish a better understanding between the British and American agriculturists than that which has hitherto prevailed. In Germany considerable work has been done,—statistics in regard to agricultural education and colleges, agricultural societies and associations, having been diligently collated. In Prussia, especially, great facilities were afforded by Dr. Falk, Minister of Education, and Dr. Freidenthal, Minister of Agriculture, to the representatives of the Order. The Hon. Bancroft Davis, United States Minister to Berlin, assisted greatly in the attainment of the necessary statistics, and was instrumental in introducing Mr. Wright to various gentlemen from whom he derived much information. Mr. Wright spent three months in England, and had the satisfaction of bringing the wants and aims of the Grange before the British public.

Several meetings of agriculturists were held, and a considerable amount of interest was developed in the work of the Patrons of Husbandry. Mr. John P. Sheldon, a gentleman renting a large farm in Derbyshire, England, was appointed permanent Deputy for that country, and will do all in his power to encourage the growth of the Order there. The English co-operators, having a membership of over 400,000, and doing an annual business of over twelve million pounds sterling, greatly favor a system by which the English consumer and the American producer can be brought into more immediate contact without the services of the middle-men.

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DECEMBER 1, 1876.

Close of the Volume.

As we bring to a close another volume of the *American Farmer*, we avail of the opportunity it gives us of renewing our thanks to its many friends, who, by their aid of whatever description, whether by enlarging its circulation among our intelligent husbandmen, by enriching its pages with new and useful material from their experience and observation, or by their words of encouragement and good will, have contributed to keep up the well-established character of this journal, which for so long a time has been so generously sustained by the most advanced and progressive farmers of the Middle and Southern States.

As in the past, so in the future, its success and character must depend on the continued support of these friends. Unless their active help is accorded us in widening the influence and reach of circulation of the Old Pioneer, and their ready pens and minds still convey the results of their own labors, we must fall short of the accustomed variety and interest of our monthly numbers, and of that increase in our constituency, which ought ever to be on the advance. But we do not look for any falling off in the exertions of the friends of the *Farmer*, and in repeating our thanks for their timely and efficient services, we ask a continuance during the volume which will open with our next issue.

On their part, its editors pledge themselves to continue to be devoted only to the interests in which they are enlisted. The senior, who for more than an ordinary lifetime has labored in this cause, though now closely bordering on the limit of four-score years, still feels all the interest in the advancement of agricultural prosperity, and pride in the honor and prosperity of the journal with which for a third of a century he has been connected. The junior, too, will be assiduous that its well-earned reputation shall not suffer in his keeping, and that the interests and welfare of our farming class shall ever be the first object of the AMERICAN FARMER.

The American Farmer for 1877.

Our terms for the coming volume will remain the same as for the past year, viz: $1.50 for single subscriptions, or $1 each to clubs of five or more, we prepaying the postage. For every club of ten we send an extra copy FREE. To all *new* subscribers coming in before December 31st, whether in clubs or singly, we will send the last three numbers of 1876 free.

These rates, which practically bring the subscription price down to $1,—since not one of our subscribers in any neighborhood but can secure four names to remit with his own,—are very liberal.

Will not our present readers, who know the character and worth of the *Farmer*, extend this knowledge to all their neighbors and friends?

Renewals and Clubs.

It is very desirable for us to have renewals made as early as possible. Will our friends remember this? They will add to our obligations by each including as many new names with their own as possible.

Agricultural Address.

We have received from the officers, for publication in the *American Farmer*, an address delivered before Centralia Grange, No. 87, of Anne Arundel Co., Md., by Dr. Martin P. Scott, of Baltimore. Its length may prevent our giving it entire, but the most interesting and useful portions will appear in our next and succeeding numbers.

☞ A reference to the Index of the present volume, which accompanies the present number, gives a fair though not a wholly complete idea of the character of the *Farmer* and of its adaptation to the needs of every country homestead. Every tiller of the soil, from the largest farmer to the cultivator of a single acre in the section for which it seeks mainly to purvey, will, as we think, find more than the value of his yearly subscription in every number.

MANGEL WURZELS.—Col. F. B. Steiner, of whose great success with the German Millet mention was made in the last *Farmer*, sends us some fine specimens of mangels, of which he raised a crop measuring over 800 bushels to the acre. The roots are large and solid.

Centennial Pictures—No. 4.

BY JANE BOSWELL MOORE BRISTOR.

Horticultural Hall is a showy building, much of it being taken up in walks and promenades, so that comparatively small space is left for plants, but that is crowded with tropical shrubs and ferns, many of them kindly given for the purpose of exhibition by foreigners, chiefly from Havana. The most attractive, as well as the largest I saw, was a gigantic specimen of the great Abyssinian banana,—Musa Ensete,—about twenty feet in height, the leaves from ten to twelve feet long. This tree, the fruit of which is not edible, was discovered by Bruce, during the Abyssinian expedition, and introduced in America by the florist, H. A. Dreer, to whom this specimen belongs, having been raised from seed four years ago. The leaves are long, broad, and massive, of a beautiful green, with long crimson mid-rib. One of these trees has grown for years in a park in Paris, simply by having a house or shed, without fire, built over it in winter. While other varieties of Musa are torn in pieces by fierce winds, this, the finest of all, is the hardiest, standing rain and storm without laceration. For the first few years of growth, before it attains such mammoth proportions, it may be wintered in the house and planted out in June, or, if moved into a winter garden, may in summer be put out on the lawn. This is the only species worth growing for open-air culture, its leaves being of firm texture, while it bears the heat and drought of a sitting-room well. With those who have not winter garden or greenhouse, the leaves may be cut off, and the plant wintered in a light cellar, in a tub with a light covering of soil and scanty watering. In summer, with good drainage, it can hardly receive too much water; in this respect resembling the caladium. No other tree gave me such an idea of the luxuriant vegetation of the tropics; none was so magnificent, striking and beautiful. In a large tub is a venerable Sago palm, which belonged to the revolutionary financier, Robert Morris, before 1776.

A small neat pavilion, near the popular resort of the Dairy, marks the headquarters of the Pennsylvania Bible Society; a copy of the scriptures is open at the words, "O earth, earth, earth, hear the word of the Lord!" When the American Government was formed there were only five millions of printed copies of the scriptures in the world. Now the yearly circulation by bible societies and book trade is not less than six million. Then the bible had only been translated into forty dialects; now it is published in over two hundred, which are exhibited in the main building. Since the opening of the great exposition, the Pennsylvania society has sold twenty-five thousand bibles, testaments, and parts of the scriptures in forty-five different languages, many having been bought by the Chinese. A new feature has been the publication of the books of the New and some of the Old Testament separately in tiny volumes, but excellent type, for five cents each,—these being Oxford reprints.

In the main building a model of the Baltimore shot-tower strikes us familiarly. Near it is a shirt, "hand-made by two Southern ladies, sixty complete back stitches to the inch! forty-seven gathers to the inch! one hundred over-cast stitches to the inch!" A "challenge to the world for one thousand dollars" is added. We devoutly hope no one will ever make such another. We looked with very different feelings on Long Branch pebbles, gathered by a member of the same family in the same case. They are exquisite: two large ones, set in brooches, being unsurpassed. Slippers presented to Miss Astor are here, adorned with china asters formed of oriental pearls. An elevator takes you to the top of the main building, thirty-eight feet above; the view of the hall and its varied objects, mirrors, marble, glittering glass and silver being simply dazzling. That walnut case lined with delicately-tinted satin, and filled with richly-made gold rings from the factory of Muhr & Sons, is valued at ten thousand dollars. There are hundreds of different patterns. Farther on, great blocks of graphite, with veins and without, foliated, laminated, granulated, etc., from Ceylon and other countries, are shown side by side with that found on the banks of Lake George, near the ruins of old Fort Ticonderoga, the latter quite as good as the foreign. Eight hundred acres of graphite land are owned by the Dixon Crucible Company of New Jersey,—those landscape drawings, with their soft shades and delicate tints, being drawn with pencils of Dixon graphite. Those three pieces of furniture, a sofa and chairs, of Aubusson tapestry, cost two thousand dollars; they are made by hand, eight thousand different shades of color being used in the weaving.

Byron Weston, of Dalton, Mass., has a huge ream of linen record paper called the Leviathan, weighing one thousand pounds. To it was awarded the highest medal for strength and durability, the largest record book in the world being made of it. Ten tons of this massive paper are used to form a square and pyramid, with striking effect. In that case of Sower, Potts & Co., is a curious exhibit. In Germantown, in seventeen thirty-eight, Christopher Sower began to publish an almanac and a periodical. Intercourse with Germany was not so frequent as with England, so that German literature had to be made here. These publications were in that language. Those early Germans were more or less refugees, the Reformation having created a love of liberty and controversy, many little sects, all more or less persecuted, were formed, and came to this country, especially Pennsylvania and North Carolina. They had no press when they came, but one was sent to them from Germany and put in Christopher Sower's office, from which first a monthly, then a semi-monthly, and finally a weekly, appeared. In seventeen forty-one, a quarto Bible was begun, the first edition being completed in seventeen forty-three. Christopher made his own type, his own ink, and bound his own books, being the first type-founder. About

twelve hundred copies were published, and in seventeen fifty-eight he retired from business, leaving it in the hands of his son, who published a second edition of two thousand copies, completing in seventeen seventy-six a third edition of three thousand. In his day, he was the largest publisher in America, issuing many standard religious works in English and German, and working with Benjamin Franklin. His son David, printed a periodical exhibited in this case, the copy being here which was published in mourning after Washington's death, with account of the funeral ceremonies at Mount Vernon, and the oration by Harry Lee. His son continued the journal, the present firm, and fifth in descent from the first Sower, publishing half a million of school books. Christopher's Bible was the first in any European language published in this country, and the first Bible of any kind published in America, except Eliot's Indian one. Sowers' was a quarto, while that brought out in seventeen eighty-two under the patronage of Congress was a duodecimo. Here are Sabbath-school tickets in German, with text of Scripture and verse of a hymn, printed in seventeen forty-seven, by Christopher Sower, forty years before Robert Raikes had his first Sunday-school.

In Machinery Hall, the process of engraving, or reproduction of engraving by the Heliotype process, drew many visitors. The pictures are in effect photographs printed in printer's ink, at an ordinary press. They are made with great rapidity, and independent of light; being as permanent as engravings, requiring no mounting, but coming from the press with clear margins finished, ready for binding or framing. Specimens of artist's drawings, Rosa Bonheur scenes, designs, portraits, and fine engravings for books, were struck off before admiring crowds. "Rent Day" and "In Danger" a snow scene, are fine subjects admirably executed. The patent is owned by Osgood & Co., of Boston. The Mount Vernon Company, of Baltimore, displayed many varieties of duck for hammocks, bags, cots, belting, etc., a very superior article for paper makers' felting, seven to fifteen ounces army tent and awning and cotton canvas, nine to one hundred and thirty inches wide.

Brazilian butterflies, bugs, birds and feathers, surpass all imagination. Many of the beetles are set in gold, and no broach ever held such gems. Emerald and Malachite sink into insignificance before these shades of green. Hues and lustres of all precious stones pale before the wings of tiny bugs, changeable as opals, varied as the rainbow, glittering like dew. Then the birds with their rare plumage! Summer nights in Brazil, with such creatures on the wing, or sun-lit days, what must they be!

Philadelphia, Nov. 20th, 1876.

Raising Cotton and Provisions.

Says the editor of the *Southern Cultivator*:

For years past it has been forcing upon our attention the folly of planting cotton to buy provisions, but the lesson has not been fully learned yet, and the consequence is very unsatisfactory prices. But we are inclined to think that a very large portion of Southern farmers are now prepared to curtail their cotton crops, if they could see clearly what to substitute in its place. They have increased their food crops some; but have decreased the cotton crop very little. So far, so well, but they must go farther, and we would suggest now that they turn their attention to diminishing the *cost of labor*. Three modes of hiring have been adopted since the war: renting land for so much cotton, giving a part of the crop, and paying money wages. In each and all of these modes, the farmer, either directly or by going his security, furnishes the laborer with supplies at *time* prices. Now suppose the farmer raised enough provisions to supply his laborers; he could either bargain with the laborer at the rates which have been customary for several years past, and pay him largely in provisions, at the usual merchant's time rates, and thus obtain a very handsome profit on his produce, as an offset to the high cost of labor; or what is decidedly better, he could bargain with his laborers to furnish provisions at *cash* prices, and pay correspondingly less for labor, which latter brings us to the point aimed at—a reduction in the cost of labor, both nominal, and, as we believe, actual also. Many persons imagine that it makes no difference what the negro has to pay for his food and clothing. That is a great mistake—the cost of living inevitably regulates the price of labor. It takes time to make the adjustment. Reduction of wages is always resisted at first, but it must follow reduction in the cost of living. This is no new problem—it has been sprung and solved again and again. The only question then about which doubt might arise is, whether the farmer could afford to raise provisions with which to supply his laborers at cheap rates. As to *bread*, we have no doubt whatever that he can. Let an abundance of rust-proof oats be sown in September or October, to feed plough stock, and it would be very easy to raise corn and wheat enough to supply his hands with bread. It is the practice of feeding horses on nothing but corn and fodder, that makes empty cribs, even under the present reign of cotton. We know a farmer who plants only *two* acres of corn to the mule, and always has fat stock.

The raising of pork, cheap enough for the purpose now under consideration, admits of doubt, but we are very strongly inclined to think it can be done. The two greatest difficulties are theft and cholera. The first is remediable, the second pretty largely under the control of a vigilant, careful farmer. To guard against theft, hogs must be kept in an enclosure, (which we will describe more fully directly,) where they could not be stolen in the day without being seen, and locked up at night in a strong log house or pen. We have recently published several exhaustive articles, on the subject of cholera. Whilst no *specific* is known or likely to be discovered, certain precautions and a little medicating, will very effectually ward off the disease. These embrace proper food and water, cleanliness, destruction of vermin, salt and ashes always within reach, and an occasional dose of charcoal, sulphur and copperas.

The remaining question, economical feeding, will be discussed now, in connection with the hog "enclosure" alluded to above. This enclosure should be near the dwelling, with running water in it if possible. It should contain about an acre

for every hog—that is to say, if one wishes to kill 20 hogs every winter, his enclosure should contain 20 acres. Of these 20 acres, 8 should be devoted to fruits, wild and cultivated, 2 to chufas, 2 to sweet potatoes, 2 to ground peas, and 6 to oats. Of the 8 acres in fruit, 3 acres of the poorest, roughest land should be set in plums, wild cherries, mulberries, muscadines and persimmons. These would cost nothing but the setting out, and would yield a large amount of valuable food, in pretty nearly unbroken succession from May to December. The remaining 5 acres should be set in apples and peaches, selecting hardy and abundant bearers, and keeping an eye also to a succession. In this orchard plant an early variety of peas. The 6 acres in oats would alternate with the 6 acres in the three other crops named. Only *six* acres would be in ploughed and hoed crops. After the fencing and setting out of trees, the expense of the hog field would be very small, and the hogs raised and fattened upon it, with a little corn, say one bushel per head to finish off with, would repay that expense manifold. We are not prepared to give figures, but are confident that the cost of pork under such an arrangement would be exceedingly small.

Wherever clover can be successfully grown, a clover patch should be added to the above, for early spring grazing. It is especially admirable for sows and pigs. Chufas, potatoes and ground peas left by "fattening" hogs, would carry the "stock" hogs to the first of January, and clover coming in the first of March, would leave only *two* months of the year unprovided for.

The potato best suited for hogs, is what is known in upper Georgia as the *red yam*, a very large, early and prolific variety, forming its tubers deep in the ground, beyond the reach of moderate freezes. The muscadine vines should be trained on the wild fruit trees, and blackberries also set out in all suitable nooks and corners. In procuring persimmons and muscadines, be sure to get *bearing* trees and vines, as many of both these plants are *barren*. The whole field should be fenced off into four divisions—one embracing the wild fruit, another the peach and apple orchard, another the oat field, and the last the potato, chufa and ground pea patch.

With such arrangements, we are satisfied a farmer can supply his hands with cheap pork, and, without further discussion, submit the matter to the consideration of our readers.

The British Corn Trade.

In its weekly review, the *Mark Lane Express* of Nov. 27th again speaks encouragingly of the aspect, and thinks it sufficiently favorable to justify farmers in holding back wheat as long as possible. Supplies of home-grown grain both in the London and country markets are still meagre, and at a majority of the latter there was on Saturday an advance of one to two shillings per quarter. A healthy tone generally is remarked, although business has not been particularly brisk. The "enormous crop on the Pacific slope," it says, "has been the single great exception to the general rule of short harvests." Corn has recovered its late depression in London, and an advance of about a sixpence realized.

☞See advertisement in another column of this paper headed "THE NURSERYMAN'S DIRECTORY," of special interest to all Nurserymen, Florists, Seedsmen, Horticultural Implement Makers, &c. Send order at once, for a copy.

Contents of December No.

Woodlawn Agricultural Society, of Fairfax County, Va., by N. W. Pierson.....369
Report of Examining Committee on Wm. Hunter's Farm.....369
Harrisonville (Md.) Agricultural Union, by E. S. Choate.....371
Farm Yard and Artificial Manures Compared; Crops in Prussia, by E. Wenig.....371
Winter Oats in Virginia, by Nansemond....372
German and Hungarian Millet, by W. M. Evans.....372
Our French Letter, by F. C.....373
Oats, Grass and Merino Sheep, by Genl. John S. Goe.....374
Products of the South, by C.....374
From the Corresponding Editor—Farming and the Labor Question; A Fertilizer for Corn and Rice; Good Manure for Orchards; Dynamite.....375
Number of Times to Plow Corn.....376
A Cheap Tobacco Prize.....376
Holllow Horn in Cattle, by Wm. L. Schofield.377
Hog Cholera.....379
Cows at Calving Time.....379
Impaction of Rumen.....379
Short-Horns in Maryland.....379
Over-reaching.....379
Mothering a Lamb.....379
Cure for Choking Cattle.....379
Fattening and Preparing Poultry for Market.380
Lice on Fowls.....380
Wintering Bees.....381
Work for the Month—Corn Crop; Tobacco; Plowing; Live Stock; Composts and Manures; Drains and Ditches; Fences and Gates.....381, 382
A Herd of Guernsey Cattle.....382
Soft Butter.....383
Beets and Carrots for Cows.....383
Horticultural Societies, Their Acts, Objects and Uses, by J. Fitz.....384
Protection from Birds.....384
Manuring Orchards.....385
Winter Protection of Plants.....385
Maryland Wines, by Gen. L. Giddings.....385
Vineyards in Virginia, by C. A. Heineker...387
Growing Large Bunches of Grapes.....388
Chestnut Hill Views, No. 2, by W. F. Massey.388
Growing Hyacinths in the House.....389
Cold Pits.....390
Layering Roses.....390
A Vase of Simple Flowers.....390
Floriculture for Dec., W. D. Brackenridge..391
Gunpowder Farmers' Club.....392
The True Theory of Farming, No. 12, by L. H. McGinnis.....393
Deficient Elements in the Soil.....394
Crops and Prospects in Georgia.....395
Meeting of National Grange.....396
Close of the Volume.....398
Centennial Pictures.....399
Raising Cotton and Provisions.....400

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INDEX TO VOLUME V—NEW SERIES—1876.

A

PAGE

Agriculture—Progress in, by Jas. Atlee, 39; by H. W. Cosby, 51; Retrospect of some theories in, by Dr. D. Stewart..... 54

Agricultural Calendar—Farm work for Jan., 21; February, 56; March, 92; April, 123; May, 161; June, 198; July, 228; Aug. 262; September, 295; October, 327; November, 355; December.....381

Agricultural Colleges—The Maryland, 27, 34, 35, 86, 105, 141, 172, 359; by N. B. Worthington, 300; by C. E. Coffin, 52; the State Board of Education on, 67; Farmer's Convention of Montgomery Co., on the Md., 68; Virginia, report on, 69; Catalogue of Va., '75 and 76, 271; Kansas and Md., 70; in Germany, by Mr. Wering, 78; failures of, by L. A. Hansen, 79; Manual labor at, by L. A. Hansen, 273; by Dr. Minor.....274

American Farmer, New Volume, 1, 26, 52, 252; Complimentary Notices of, 26, 51, 72, 201; Duty of Writing for the, 280; Corresponding Editor for, in the Carolinas, 332, 375; A New Campaign for the.....359

Agricultural Clubs, Societies, &c. (see Farmers' Clubs.)

Agricultural Congress, (National) Meeting of, 203, 299, 329; Mr. Flagg's Address at.....330

Agricultural Education, (see also Education and Colleges) by Dr. E. M. Pendleton, 241; by the Editor, 274; by H. E. of S. C. 333; in Farnce.....373

Agricultural State Fairs, 264; County Fairs.299

Agriculture and Civilization, by Jno. T. Jones.270

Allen, A. B. on the Berkshire Hog.....218, 248

American Nurserymen's Association.....272

Apiary—Beekeeping, 25; Feeding Bees in Spring, 90; Management of, 161; To make Artificial Swarms, 229; To secure Premium Honey, 229; Experience with Bees, 269; Changing Situation of Hives, 294; Care of Bees in Winter, 357, 381; Bee Enemies, 357; A Site for Hives..... 361

Asparagus—Cultivation of, by W. F. Massey, 135; Another Mode.....154

Atlee, James, on Progress in Agriculture.... 39

B.

Barley—The English Chevalier.....184

Beef, American, Shipments of, to Europe, 282; Preserving Meats..... 312

Bees, (see Apiary.)

Beets—Cultivation of the Sugar.....124, 184

Beans—Culture of Varieties.....197

Brackenridge, W. D.—(see also Floriculture.) Report on Md. Fruits by..... 189

Breeding Stock—Value of a Pedigree in....187

Bristow, Mrs.—Sketches of Travels, by, 36; Pictures of New York, by, 204; Centennial Pictures, by.....303, 335, 362, 399

Bryan, O. N.—(see Fisheries.)

Buckwheat—Cultivation of, and Manure for, ...198, 228, 327

C.

Carter, Jno. I., on continued action of Fertilizers, 77; on Orcharding, 94; on Dairying.126

Carrots, Cultivation of.....124

Cattle—(see also Dairy, Live Stock, &c.;) Black Leg in, by Jno. T. Bard, 88; Precocious, 148; to relieve Inflamed Udder in, 158; choking in, 160, 379; Sale of J. Stricker

PAGE

Jenkins' Jerseys and Sheep, 173; the Guernsey, 382; The Holsteins. 57; by J. Auger, 157; Importation of, Rules for, 128; the best Breed for the Dairy, by W. J. Schofield, 151; to Prevent Abortion in, 158; Garget in, 220; Foot Rot in, 220; Grade Jerseys, by Thos. Fitch, 247; Loss of Cud in Cattle, 251; Ticks on, and Sheep, 254; Cutting and Steaming Feed for, 285; Fattening of, 285; a Useful Invention for Fractures, 331; Choking, Remedy for, by Prof. Law, 340; the Guernsey.....382

Chisolm, R.—On the Guinea Grass, 8; on Trees..... 15

Centennial, The—Stated Displays at, 171; an Arboretum at, 185; Horse and Cattle Shows at, 209, 248, 359, 360; Agriculture at, 217; Fruits at, 226, 231; Harvesting Machines at, 232; Rhododendrons at, 259; Agricultural Products at, 299; by Mrs. Bristor, 303, 335, ...362, 399

Corn—Trenching for Fodder, 4, 216, 255; Cultivation of, for Soiling, 162, 198, 221, 228, 246, 361; Fodder vs. Grass, 179, 222; Preserving Fodder and Roots in Germany, 6, 84; in France, 123, 281; T. T. Gorsuch's Prize Acre of, 26, 49; Jas. Bosley's Prize 5 Acres, 56; Great yield of in Alabama, 50; Ground for, 57, 103; Formula for Compost for, 345, 375; in Georgia, 112; Growing of, on Scientific Principles, by D. Sturtevant, 113, 167, 275; Cultivation of the crop of, 124, 161, 198, 228; for Soiling, 125; Enormous receipts of in Baltimore.....238

Cotton—Raising Cheap, 2; Estimate of crop of 1875, 43; on Planting, by David Dickson, 102; Fertilizers for, 104; Fertilizers for, Formula for Composting, and Experiments in Georgia, 111; the Results of the Crop, and Cultivation of, 168, 376; Condition of the Crop, 302; a Compost for, and Corn.....345

Clover and Plaster as Fertilizers, 9, 177; Sowing of, 56, 92; Raising seed of Clover, 230; Sowing at the South..... 276

Constitution of an Agricultural Club, by T. Gorsuch 253

Cranberries—Culture of in Md..... 355

Croft, Tho.—On Draining Lands.....8, 120

Cultivator—The Granger..... 30

Cold Pits.....390

D.

Dairying—Ear marks of Butter Cows, 23; Short-Horns as Milkers, 23; the Statistics of in the United States, 58, 91, 186; Spurry, as Food for Cows, 70; Large Yield of a Cow, 87· on Management of Dairy Cows, by Mr. Hansen, 221; by Mr. White 91; in Pa., 186; Temperature for Butter, and Cheese, 121; on the Management of Dairy Houses, 127; on Dairying, by Prof. E. W. Stewart, 127; Precocity in Cattle for Milk and Butter, 148; Best Breed of Cattle for, by Wm. J. Schofield, 151; Oleomargarine Butter in Baltimore, 171; When Should Cows of a Butter Dairy Calve, 186, 221; Garget in Cows, 220; Foot Rot, 220; Fodder Corn for Milch Cows, in Vermont, 221; Butter Making in France, 240; Value of Beets for Cows, 236, 383;

PAGE

Garget and Hollow Horn in Cows, 247, 376; Grade Jerseys for the Dairy, 247; Experiments in Setting Milk, 283; Philadelphia Gilt-edged Butter, how made, 283; Hints for Calving Time, 286, 379; Stabling Cows the Year Round, 316; Milking Properties of Ayrshires, Short-horns and Jerseys, 328; the Exhaustiveness of, 329; Milk, Analysis of, 329; Making Butter, 329, 383; a Fodder Plant for Dairy Cows, 343; How Cows should go into Winter Quarters, 356; to Maintain a Full Flow of Milk.....356

Daniel, Z. C.—on Improvement in Poultry, ...90, 125

Detmers, Dr.—on Hog Cholera.....339, 377

Dickson, David—on Cotton Planting.....102

Draining—by Tho. Croft, 8, 120; by L. A. Hansen, 56, 147; Time for.....327

Drilling—Accurate Work, by Bickford & Huffman's Drill..... 69

Drill—Value of in Seeding Cereals, by D. Lawrence.....279

Dynamite on the Farm.....375

Deficient Elements in Soils.....395

E.

Education—(see also Agricultural Colleges and Agricultural Education)—Agricultural, in Germany, by E. Wenig, 78; by Dr. E. M. Pendleton, 241; by the Editor, 273; by H. E., 333; by Philo.....342

F.

Fair, A Novel Agricultural.....366

Farmers' Clubs and Societies—The Gunpowder, proceedings of, 11, 26, 49, 55, 56, 84, 210, 233, 266, 268, 296, 305, 392; Potomac Fruit-Growers, 15, 61, 93, 129, 224, 287, 320; Md. State Agricultural Society, 36, 44, 101; Proposed Change of Grounds of, 175, 233; 234; Montgomery Co. (Md.) Farmers' Convention, 45; Sandy Spring Club, 47; Montgomery Club, 48; Enterprise Club, 99; Elmira (N. Y.) Farmers' Club on Grasses, 307; Woodlawn (Fairfax Co., Va.,) 370; Harrisonville, Md.....371

Farm Schools in Europe, by Prof. Kedzie... 3

Farquhar, A. B., An Enterprising Manufacturer.....231

Farming—Thorough Cultivation, by J. Fitz, 6; by S. N., 83; Scientific do., by Prof. Stockbridge, 31; Brains and Methods in, 41; do. by Dr. Sturtevant, 113; Some Causes of Failure in, by S. N., 33; How to Make it Pay, 147; And Grazing, 150; On High Farming, by C. T. Haile, 150; Cheaper Production is Higher Prices, 170; Changes in, 183; on General Farming, by E. O'Donovan, 185; True Theory of, by L. H. McGinnis, 212, 393; Beginners in, 215; Observations and Suggestions in, 282; Science in 342; and the Labor Question..... 75

Farmers—A hint to them to do Their Own Legislating, 201; by Dr. Lee, 230; by Industry They Thrive.....253

Fences—The Vagrant Stock Question, by Col. E. Wilkins, 13; by S. N., 83; To Make Wire, 52, 80; Portable, 171; The Law of, 202; A Grape Fence.....334

Fertilizers—(see also Manures) Clover and Plaster as, 9; For Crop Feeding, by Prof. Stockbridge, 31; For Wheat, by W. Holman, 5, 75, 107, 143; Gypsum (plaster) as, by W. H. White, 77; Phosphates as Plant Food, by Prof. Goessman, 32, 41; Testing the Action of, by Jno. I. Carter, 77; Use of, by S. M. Rankin, 85; For Cotton and Tobacco, 104; Errors in Analysis of, by Prof. P. B. Wilson, 109; for Crops in Georgia, 111; For Tobacco, 114; on Use of Concentrated, 114; Even Distribution of, 251; for Fall Use, 300; Red Clay as a, by J. Fitz, 305; Experiments with in France, 313; by Wm. Holman, in Virginia, 334, 366; German Potash Salts, 344; Compost for Cotton and Corn.....345

Ferneries and their Management, by Mr. Meehan..... 64

Feeding Stock.....129

Fisheries in Maryland and Virginia, by O. N. Bryan, 13, 159; Petition on, to Maryland Legislature..... 24

Fitz, J., on Thorough Culture, 6; on Selection of Fruit Trees, 62; on the Detriment to Fruitage by High Culture, 193; on Red Clay as a Fertilizer, 305; on Horticultural Societies.....384

Fodder—(see Corn)—The Butter Plant for, 342; Hungarian Grass and Fodder Corn...361

French Letters on Agriculture, 9, 52, 81, 121, ...148, 183, 216, 254, 281, 312, 342, 373

Floriculture—(see also Horticulture)—Hints for January, by W. D. Brackenridge, 17; for February, 62; for March, 96; for April, 132; for July, 226; for August, 258; for September, 293; October, 323; November, 353; December, 391; Best Light and Dark Roses, 18; A New Dahlia, 18; Tea Roses, 63; Ferneries and their Management, 64; A Beautiful Climbing Plant, 64; Arrangement of Plants in Pots, 64; the Double Scabiosa, 65; Occupation for Amateur Florists, 97, 133; Winter Flowers, by W. F. Massey, 97; the Camellia, by Jas. Pentland and John Feast, 97; Treatment of Roses, 132; Restoring Health to Camellias, 161; Geraniums, Greenhouses, &c., 164; Double Begonias, 165; Rhododendrons and Camellias, by N. F. F., 190; Anthurium Scherzianum, 197; Yucca Filamentosa (with cut) 205, 227; Sulphate of Ammonia for Verbenas, 259; Rhododendrons at the Centennial, 259; the Gladiolus and other Summer Flowering Bulbs, 260; Bedding Plants, by N. F. F., 291; Destroying Insects on Greenhouse Plants, 292; to Destroy the Rose-bug, 302; Roman Hyacinths, 310; the Sweet Potato Vine, 320; Drainage for Pot Plants, 320; Chestnut Hill Views, by W. F. Massey, 324, 388; Hyacinths in the House..389

Fertilizer Manufacturers' National Association.....204

Farms—Work and Labor on, in winter..... 51

G.

Gate, to Make a Good One.....309

Georgia, Farming in, by S. Gregory, 103; Progress of Agriculture in, 111; Crops and Prospects in.....393

Gilmer, Geo. C., Virginia for Immigrants, by, 86; on Saving Orchard-Grass Seed.....188

Giddings, Genl. L., on American Grapes and Wines.....195, 385

PAGE

Goe, Genl. J. S., on Sheep Growing.22, 23, 58, 374
Goessman, Prof., on the Phosphates as Plant-Food.....32, 41
Gorsuch, D., Visit to the Farm of, 333; Report of Inspection Committee on his Farming..268
Gorsuch, Thos., (See Gunpowder Club's Reports); Constitution of Gunpowder Club..253
Grange, The, or Patrons of Husbandry, not partisan, 230; Address to, by Mr. Jacques, of S. C., 3; Maryland State, Report to, 35; As an Educator, by Rev. C. W. Howard, 71; Rejection of Their Law on Sheep, by Md. Legislature, 100; Maryland Granges, 106, 138, 173, 203, 272, 360; Agriculture and Civilization, by Master Jones, of National Grange, 270; The True Objects of the Grange, 270; Advantages of The, 363; Meeting of National.....396
German Millet—(See Millet.)
Grain, Comparative Value of Feeding Different Kinds to Cows, 337; Spring and Fall Sown.....343
Grasses—Wire, Bermuda and Guinea, 7; The Guinea, by R. Chisholm, 8; Lucerne in Va., 31, 92; by N. Popplein, 98; The Orchard, 57, 92; in Va., 278, 345; do., by Mr. Gilmer, 182; in Tennessee, 308; Millet, the German, 102, 178, 246; Manures for, 119; the Ky. Blue, 173; Alabama Guinea or Johnson Grass Seed, 173; Millet and Hungarian, 178, 203, 228, 361, 372; Cutting Clover and Orchard Grass, 198; and Grain in N. C., by Jas. Joyner, 215; Raising Clover Seed, 231; Timothy and its Cultivation and Fertilizers, 262; Top-Dressing Grass Lands, 263; Raising Clover in the South, 276; Orchard Grass and Lucerne in New York.....307
Grape Culture—(See Vineyard.)
Guano, Fish, How Made, 198, 208; Peruvian, Guaranteed.....298
Gregory, J. J. H., on Manures.....245

H.

Hansen, L. A.—on Draining, 56, 147; on Holstein Cattle, 57; on the Failures of Agricultural Colleges, 79; on Trenching Fodder, 84; on Tenants and Landlords, 215; on Even Distribution of Fertilizers, 251; on Manual Labor at Agricultural Colleges....274
Harrows—the McGinnis, 34; with cut.....294
Harvesting—Time to cut Timothy, 228; of Hay in the Vosges.....255
Hogs—Poland China and Essex, 57, 125; Cholera in, by G. W. B., 88; Dr. Detmers, 339, 377; by Mr. Kelly, 188; by Prof. Law, 287; Dry Foot-Rot in, 98; Which is the best Breed of, by Nansemond, 154; Raw vs. Cooked Corn for Feeding, 202, 382; Essay on the Berkshire Breed of, by Allen, 218, 248; Remedy for Cholera in, 334; American Berkshire Association, 337; for Fattening.356
Horses—The best Agricultural, 126; Raising of in France, 149; society of Importers of, 157; to Break Balky, 157; to Cure Scratches and Bots in, 158; Lameness, Remedy for, 219; Bone-Spavin, Treatment of in, 250; Staggers and Indigestion, by Randall, 251; The Law of Hiring, 271; Management of Stables for, 316; Heaves in, 326; Rubbing the Tail.....341

PAGE

Holman, W.—on Chemical Manures for Wheat Crop, 5, 75, 107, 143; Experiments with Fertilizers in Va., 334; Fertilizers Ventilated, by.....366
Hot-Beds—How to Make..... 20
Horticulture—The Catalpa, 15; Lawrence Pear, 15; Trees for Fruit and Ornament, 15; Amazon Raspberry, 16; Comet Peach, 16; Md. Horticultural Society, Meetings and Shows of, 14, 60, 93, 129, 162, 191, 222, 298, 321; on the Success of, 348, 359; Officers of, 359; Horticultural Development around Baltimore, 60; Selection of Fruit Trees, by J Fitz, 62; Synonymou Pears, 19; Protecting Strawberries, 19; Hotbeds with fire Heat, 20; Fertilizers for Starwberries, 62; Gardening for Pleasure, 64; The Tomato and Caper, 65; on the Management of Orchards, 326, 357; by John I. Carter, 94, 130; by Penna. Fruit Growers' Society, 94, 95; Pruning Orchards, 95; Wild Gardens, 97; Old Orchards, 131; Profits of Forced Peaches, 131; The Wild Goose Plum, 132; Landscape Gardening, 133; on Garden Roads, 134; Asparagus Cultivation, 135, 154; Culture of the Cauliflower and Cabbage, 136, 165; Future of the Fruit Business in the Peninsula, 103; A New Shrub, 164; Report on Md. Fruit by W. D. Brackenridge, 189; A Visit to John Saul's Nurseries, 192; High Cultivation of Fruit Trees, by J. Fitz, 193; Hints on Fruit Culture, 194; Prof. Gray on Undeveloped Fruits of America, 194; Confusion in Peach Nomenclature, by Col. E. Wilkins, 194; Bean Culture, 197; Adorning Railroad Stations, 200; Growing Melons, 204; Pear Blight in Md. and Va., 224, 225, 256; Nansemond Beauty Apple, 226; Fruits at Centennial, 226, 331; Progress of Plum Culture, 250; Advantages of Horticultural Meetings, 256; on Keeping Pears, 257; Non-heading Cabbages, 263; American Nurseryman's Association, 272; Cultivation of Spinach, 284; Culture of the Quince, 288; Curious Freak in Peach Culture, by Col. E. Wilkins, 289; Peaches and Nectarines, by W. C. Flagg, 347; The Early Peaches, by Mr. Meehan, 289; Treatment of Young Hedges, 290; Pear Blight, by John I. Carter, 291; by Dr. Brainerd, 348; Pear Culture, by John Saul, 319; A New Apple, 319; Best Sorts of Raspberries, 319; Setting Strawberries in the Fall, 325; Rust in Celery, 326; Tree Planting in Cities, 347; Cultivation of Small Fruits, 349; of the Raspberry, 351; on Graft Hybrids, by Thos. Meehan, 355; Golden Trophy Tomato,... 356
Hunter, Wm., of Fairfax, Va., report on Farm.369
Humus in the Soil.....244
Hygiene—Poisons of the Farmer's Life, 204; the Wastes on the Farm, 236; Remedy for Diarrhea, 280; Health of Country Homes..364

I.

Ice and Ice-Houses—Management of.....365
Implements and Machinery—Care of Mowing Machines.....271
Insects—Tobacco Leaves for, 83; the Potato Bug, Remedy for, 196; Crop Enemies, 282; to Destroy on Greenhouse Plants, 293; Parasite on the Tobacco Worm.....360

PAGE

J.

Janes, Dr. Thos. P.—On German Millet and Forage Corn....246
Jenkins, J. Stricker—Sale of his Jerseys and Southdowns....173
Joyner, Jas.—On Grains and Grasses in North Carolina....215
Jute—the Cultivation of in Louisiana....178

L.

Landlords and Tenants, by C....147
Lawes, J. B.—on the Ammonia Question....208
Lawrence, D.—on the Value of Drills in Seeding Cereals....379
Lime—by Prof. D. Stewart, 146; by Wm. Leigh and L. H. McGinnis, of Virginia, 180, 237; the Time for Spreading....327
Live Stock—(see also Horses, Cattle, Sheep, Hogs, &c.)—Care of, 263, 327; in Winter, 57; Suggestions About Breeding, 272; Comparative Value of Feeding Different Kinds of Grain....337
Locusts—the 17-year, by Prof. Riley....210
Lucerne—(see Grasses)

M.

Manures—Fish Guano—home-made, 198, 208; Composting, How Done, Mr. Gregory, 199; on Phosphoric Acid, by Prof. Pendleton 207; The Ammonia Question, by J. B. Lawes, 208; Barn-yard Manures vs. Commercial Fertilizers, by J. J. H. Gregory, 245; Rye as a Green, 4; Chemical Manures and the Wheat Crop, 5, 76, 108, 143; Making of, 56, 114, 255, 262, 278; for Oats, 92; from hens, 114, 170; for Grasses, 118; Utilizing Liquid, 139; Chemical effects of on Germination, 149; for Potatoes, 162; for Corn, 165; Proper Application of, 168; Tan-yard Refuse as, 185; Farm-yard and Artificial Compared, 371; for Corn and Rice, 375; for Orchards 375
Melons—Cultivation of....204
Mangel Wurzel—Cultivation of....124
McCue, J. M.—On the Centennial Plow....145
Marl—to Utilize in Georgia, for Cotton and Corn....112
Massey, W. F.—on Winter Flowers, &c., 97; on Cultivation of Asparagus, 135; Chesnut Hill Views, by....324, 000
Matthews, D. M.—on the Proper Uses of Straw....100
Meadows and Pastures—Renovating, ...92, 119, 198, 228, 296
Millet—German, 102, 162, 178; by F. B. Steiner, 345; and Hungarian Grass, 198, 228; by W. M. Evans, of Virginia, 372; by Dr. James....246
McNeill, D.—Corresponding Editor for the American Farmer in the Carolinas....332
McGinnis, L. H.—on the Management of Lime, 180, 200; on the True Theory of Farming, 212, 000; on Fresh vs. Old-slacked Fine Lime....237
Muck—Time to Dig....327

N.

Nansemond, on Cultivation of Irish Potatoes, 135; on Sweet, 136; on Best Breed of Hogs, 154; on Pear Blight in Eastern Va., 225, 256; on Crops in Eastern Va., 311; on A New Apple, 319; on Winter Oats....372
Needham, G. F.—(See Farm Clubs, Potomac Association.)

PAGE

North Carolina, Grains and Grasses in, by J. Joyner....215

O.

Onions, Starting in Hot-Beds....88
Oysters, How to Cook....35
Oats, Preparation for, 57, 92, 123; The Probsteir Variety, 68; The Red, Cultivation of, 275; The Winter, Cultivation of, 280; do., by Mr. Killebrew, 307; do., by Nansemond, 372; Rust Proof and Winter-Grazing Varieties, by Tom Crutchfield, 309; A Heavy Yield in Georgia....346
O'Donovan, Ed.—A Paper by, read before Baltimore Co. Farmers' Club....185
Orchard Grass—(See Grasses.)
Orchards—(See Horticulture.)
Over-reaching....379

P.

Pendleton, Prof., on Phosphoric Acid, 207; on Agricultural Education....241
Parsnips, Cultivation of, 124; in France....149
Pastures, Management of....92, 119
Phosphoric Acid, A Treatise on, by Prof. Pendleton....207
Plaster and Clover as Fertilizers....9
Plows and Ploughing—The Centennial, by J. M. McCue, 145; in Indiana, 171; Stiff Clays....335
Popplein, N., on Cultivating Lucerne....98
Potatoes—Cultivation of, 92, 123, 161, 198; Fall Planting, 228; Tellier's Process, 123; by Prof. Taylor, 129; Removing the Blossoms from Irish, 135; on Cultivation of Sweet, 136; Selecting Seed, 145; The Crop of, 150; The Bug or Beetle, Remedies for, 196; Danger of Planting Diseased....297
Potash—The German Salts, Where and How to Apply....344
Poultry—Keeping and Feeding of, 24, 268; Carbolic Acid in the House, 24; Improvement in, by Z. C. Daniel, 90; Dominique Games, 90; Value of Manure From, and How to Preserve it, 114, 237; to Manage Hens That Don't Set, 159; Green Food for, 159; Turkey Breeding, 160; Feeding Hens for Eggs, 160; a Poultry House for Fifty Fowls, 188; Brahmas and Houdans, 189; The Value of, in France, 199; The Best Breeds of, 229; Barn-Yard Fowls, 229; Raising and Picking Geese, 229; The Toulouse Geese, 269; The Best Breeds of, 302; Feeding Young Fowls, 357; Cure for Gapes, 357; Cooked Food for Hens, 365; Fattening and Preparing for Market, 380; Lice on Fowls....380
Pumpkins, Storing....327

R.

Ragland, R. L., Remedy by, for Scarcity of Tobacco Plants....302
Rain—in August, Singular Fact in Regard to 330
Rake, The Wisner Tiger Sulky....127
Rankin, Samuel, on the Use of Fertilizers, &c. 65
Reflections on Life, by Jno. D. Thorne....73
Reminiscences, by Dr. D. Stewart....54, 80
Rice, Cultivation of Upland....346
Ridgely, W. C., on Southern Sheep Husbandry....22
Roads, How to Make in Gardens, &c., 194; Practical Mode of Making, 239; by Rustic 351

PAGE

Roots, Cultivation of Mangel Wurzel and Sugar Beet, 124; and Ruta Bagas, 198; The Value of, 162; Storing of, for Winter..327, 355
Ruta Bagas, Cultivation of.....198
Rye—As a Green Manure, 4; Cultivation of a Crop of.....262, 295, 327
Raising Cotton and Provisions.....400

S.

Salt, Use of in Agriculture..... 89
Saul, Jno., A Visit to his Nursery, 192; Pear Culture, by.....318
Schofield, W. J., on The Best Breed of Cattle for the Dairy, 151; on Hollow-Horn in Cattle.....376
Shingles, How to Lay.....366
Shelton Manufacturing Co., on Tobacco Culture.....115
Snow, Chas. H., on Pear Blight.....225
Sheep—Raising, at the South, 22; Wool-Growing in N. C., 23; Dogs and, 52, 66, 128, 158; Winter Management of and Food for, 58; Recipe for Scab in, 106; General Management of, 125; Effects of Shearing on Fattening, 148, 281; Early Marketing of Lambs, 155; Md. Law for Protecting, 158; Remedies for Foot Disease in, 184; Value of, for Enriching Land, 187; Genl. Goe's Merino Fleeces, 220; Ticks and Lice on Lambs, 238; on Packing Wool, 246; Administering Medicine to, 251; Ticks on, and Cattle, 254; Improving a Flock of, 284; Profits of Raising, 314, 338; Mr. Gray's Flock in Md., 338; Crossing for Improvement of Common, 338; Mothering a Lamb.379
Soiling, Advantages of, 123; Corn for, 125; Advantages of, for Dairy Cows.....127
Silk Association of America.....203
Spurry as Food for Milch Cows..... 70
Stewart, Dr. David, Reminiscences of..54, 80, 146
Stockbridge, Prof., on Crop Feeding, 31; on Cultivation of Tobacco in U. S.....209
Sorghum, Cultivation of and Manufacture of Syrups.....277
Straw, Proper Management of, on the Farm..100
Sturtevant, Dr. E. L., on Corn-Growing on Scientific Principles, 113, 167; on Proper Application of Fertilizers, 168; on Fodder Corn.....275
Stock—Value of a Pedigree in, 187; Sales of, 203, 282; Fattening Farm, 216; Suggestions About Breeding, 272; For Diseases of, &c., (see Dairy, Cattle, Hogs, Horse, Sheep, &c.)
Swamp Lands in Md., Value of 80
Stables, Properly Made and Managed.....188
Strawberry, Cultivation of, 224; (see also Horticulture.)
Suggestions for the Thoughtful..... 83

T.

Tenants and Landlords, by C., 147; by L. A. Hansen.....215
Thorne, Jno. D., Reflections on Life, by..... 72
Timber, on the Waste of..... 86
Tobacco—Curing of, 355; by W. M. E., 50; Preparation of Beds for, 57, 92, 162, 198; Inspection of, in Md., 67, 101; Raising of Plants, Without Burning, 101; Burning of, by Dr. Blanton, 278; Fertilizer for, 104, 114; on the Cultivation of, 262; by Shelton Manufacturing Co., 115; on Late Planting of, 179; Remedy for Scarcity of Tobacco-Plants, 202; Cultivation of, in the U. S., Estimates of, by Prof. Stockbridge, 209; Premiums for, in Va., 231; The Crop for 1876 in Va., 360; The Enemy of the Worm in, 360; The Perique, as raised in Louisiana..361
Turnips—Cultivation of, 228; The Flat Variety.....262

V.

Vegetables—the Garden, 165; Management of, for January, 19; for February, 65; for March, 98; April, 137; May, 168; June, 197; July, 228; August, 263; September, 296; October, 327; November, 356; Hot-beds for, 20, 65; Cabbage Culture, 20; Starting Onions in Hot-beds, 38; the Alpha Pea, 20; Diseases in, 184; Hen Manure for the Garden.....326
Vineyard—Potash for the Vine, 19; on Phylloxera—(see French Letters;) Grapes for a Cold Grapery 62; Grape Culture in Virginia, 70; do. in Pennsylvania, by Fruit Growers' Society, 95; the Lady Grape, 131; Treatment of Grapes, 171; the Phylloxera,—a New View of it in France, 195; American Grapes and Wines, by L. G., of Md., 195; J. L. Labiaux, on Foreign Varieties of Grapes in North Carolina, 196; Vineyards Overbearing, 226; Grape Management and Pruning, 288; Vine diseases in France, 313; to Make a Grape Fence, 334; on Grape-growing and Wine Making, by C. A. Heineken, 352, 387; by Gen'l Giddings, 385; Fine New Grapes, 352; Raising Large Bunches.....388
Virginia—For Immigrants, by G. C. Gilmer, 87; by W. W. Webb, 177; Crops and Seasons in, 204; Orchard Grass in, 278; Crops in Eastern Virginia, by Nansemond, 311; the Crop of Tobacco in 360
Veterinary—Inspections in France, 254—(see also Cattle, Horses, Sheep, Hogs, &c.;) the necessity for Schools in the United States..341

W.

Wenig, E.—on Preserving Fodder, Roots, &c., in Germany, 6; on Agricultural Education in Germany, 78; on Artificial and Barn-yard Manures Compared.....371
Webb, W. W.—on Immigration to Virginia..177
Wheat—Chemical Manures for, by W. Holman, 5, 76, 108, 143; Iron in, 147; Prevention of Rust in, by Dr. T. P. Janes, 179; Steeps for Seed, 184; the Clawson and Fultz, 254; Plowing for, 262; Experiment in Raising in South Carolina, 278; Seeding of, and Other Cereals, by D. Lawrence, 279; Seeding of, by the Drill, by D. Lawrence, 279; Cultivation of and Fertilizers for, 295, 334, 327; the Importance of Good Seed, 297; Different Varieties of 297
Wilkins, Col. Ed.—(see Horticulture)—on Confusion in Peach Nomenclature.....194
White, W. H.—on the Cauliflower.....136, 165
Wilson, Prof. P. B.—on Errors in Fertilizer Analysis.....109
Wool—(see also Sheep)—on Packing for Market.....246

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